Physical abuse, sexual victimization and illicit drug use: a structural analysis among high risk adolescents

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The relationships between child physical and sexual abuse and illicit drug use are relatively unexplored and obscure. Data gathered from a sample of youths in a juvenile detention center permitted an examination of this important issue. A structural model, specifying the influence of child physical and sexual abuse variables on the youths' illicit drug use, directly and as mediated by self-derogation, was estimated among male and female detainees. Results suggest that for both gender groups, sexual victimization had a primarily direct effect on drug use, whereas physical abuse had both a direct and an indirect effect on drug use. The indirect effect of physical abuse on drug use was mediated by self-derogation. Further analysis indicated race did not affect the results. The implications of these results for theory and research on the etiology of drug use and the identification of youths in high risk groups who are likely to become seriously involved in drug use are discussed.

INTRODUCTION

A better understanding of adverse developmental outcomes of physical and sexual abuse has recently become a research priority, particularly among special high-risk populations of adolescents (Applebaum, 1977; Solomons, 1979; Friedrich, Einbender and Luecke, 1983; Carmen, Picker and Mills, 1984). Adolescents who have come into contact with the criminal justice system are at high risk of becoming antisocial adults and constitute one particularly important cohort for the study of the correlates and outcomes of child abuse. The identification of the linkages between physical and sexual experiences and specific adverse outcomes among high-risk youth may provide a better understanding of their transition into adulthood. Most importantly, this information may lead to the development of intervention strategies for minimizing the likelihood that these troubled adolescents will pursue antisocial life styles in the future.

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There are few studies in the literature of the relationship between child maltreatment and specific outcomes, such as drug use. Despite the importance of better understanding the influences on drug use by adolescents, there is very little useful research on the association between physical and sexual abuse with subsequent drug use. The limited information on this topic (Benward and Densen-Gerber, 1975; Russe and McBride, 1985) supports the view that child maltreatment increases the risk of developing drug use problems.

Unfortunately, knowledge about this important area is severely limited. Much of the relevant research on child maltreatment suffers from serious theoretical and methodological weaknesses. The emerging field of child maltreatment has largely developed in the absence of a comprehensive theoretical perspective regarding the etiology, correlates, and consequences of abuse (Crittenden and Ainsworth, 1987). In the interest of parsimony, models of the adverse outcomes of child maltreatment should in principle be consistent with empirically tested theoretical perspectives. The role of child maltreatment in later drug-use problems can be most parsimoniously studied by drawing upon theoretical perspectives in two substantive areas: child maltreatment and drug use. Such a strategy was used in the development of the research model for this study.

Much of the relevant research on outcomes of child maltreatment suffers from methodological problems, including limited scope, poor sampling procedures, descriptive rather than inferential approach, or reliance on official statistics. The relatively homogeneous abuse histories and drug use experiences among samples of youths that are conventionally drawn for study, e.g. youths attending educational settings, presents a special statistical concern. The relatively narrow range of variability can lead to artifactually attenuated correlations between abuse and outcome (Hays, 1981). The restricted range problem can lead to Type II errors, failure to correctly identify the presence of a relationship. Adequate variability in abuse and drug use measures is a necessary condition for the effective study of the relationship between these measures.

In this study, we address the need to develop and test a model of child maltreatment and drug use among high-risk adolescents (Friedman, 1976; Raymond, 1981; Steele, 1982). A structural model of illicit drug use, based on the work of Kaplan (1980), is developed that includes the influence of physical and sexual abuse as mediated by self-derogation. The validity of the structural model is tested among a sample of male and female adolescents in a juvenile detention center. All youths in this study have been classified as "status offenders" or "juvenile delinquents". These youths have already been identified as having difficulties in adjusting to society and are at risk of pursuing delinquent behavior patterns. In light of the current status of these
Youths in the judicial system, the results of the test of the structural model on this sample generalize to an important population and offer important social policy implications.

The relatively high variation in the reported incidence of child maltreatment and drug use among some youths in this cohort overcomes the restriction of range problem and enhances the conclusion validity of the study, i.e. the likelihood of correctly identifying a relationship (Judd and Kenny, 1981). The heterogeneity of maltreatment and drug use experiences among this cohort provides an important opportunity to study a neglected area in the literature.

A STRUCTURAL MODEL OF THE INFLUENCE OF CHILD PHYSICAL AND SEXUAL ABUSE ON ILLICIT DRUG USE

A major premise underlying current views of youths' involvement in illicit drug use and other delinquent behaviors is that their initial exposure to and increased involvement with substances reflects socialization (Kandel, 1975; Coombs, Fry and Lewis, 1976; Jessor and Jessor, 1977; Kandel, Kessler and Marguilies, 1978; Elliott and Huizinga, 1984) or social learning experiences (Akers, 1985) in which the influence of peers is pronounced. Little attention has been given to the possible influence of child maltreatment in the development of various patterns of drug taking.

Despite theoretical and methodological shortcomings, the literature supports the importance of investigating the role of children's physical and sexual abuse experiences, and their attendant loss of self-esteem, in understanding their involvement with illicit drug use. The speculative findings of the pioneering work need to be investigated critically. The following sections review the relevant literature that pertains to the relationship of each component in the model to illicit drug use. Following a discussion of components of the model, the structural relationships are specified.

Physical abuse

Although there are different patterns of physical abuse of the young (Garbarino and Gilliam, 1980), and it is often difficult to disentangle the effects of abuse itself from the influence of the disturbed family environment in which the abuse occurs (Friedman, 1976), physically abused children have consistently been found to be at higher risk of becoming involved in illicit drug use and other delinquent behavior. Studies completed by Welsh (1976), Alfaro (1981), Green (1981), Mouzakatis (1981), Wick (1981), Steele (1982), Geller and Ford-Somma (1984), Straus (1984) and Russe and McBride (1985) have confirmed these theoretically expected linkages (Weinbach, Adams, Ishizuka and Ishizuka, 1981) in diverse samples.
Sexual victimization

Due to its often tragic impact on the child's development of a sense of trust (Raymond, 1981, Cupoli, 1984), special attention has focused on the influence of sexual abuse on subsequent patterns of delinquent behavior. For example, the National Center on Child Abuse and Neglect (1978) found drug use was more common among victims of incest than various comparison groups. Alfaro (1981) found, in his study of eight counties in New York State, that as many as half of the families initially reported for child neglect or abuse had at least one child later taken to court as delinquent or ungovernable. Benward and Densen-Gerber (1975) found that nearly 50 per cent of the group of female drug abusers they studied were victims of sexual abuse. In addition, Mouzakitis (1981) found that 53 per cent of the delinquent girls he studied were forced to have sexual intercourse; further analysis indicated that these girls tended to become incorrigible, truants, runaways, sexually promiscuous and drug users.

Self-derogation

Findings in the literature consistently support an association between illicit drug use among adolescents and feelings of low self-esteem (Kaplan, 1980, 1985; Kaplan, Martin and Robbins, 1984). Negative self-esteem, or self-derogation, is a central concept in this important line of work and has been found to account for the initiation of a wide range of deviant behavior, including drug use. Negative self-attitudes are experienced as highly distressful. Individuals with negative self-views tend to deviate from the normative structure, and seek deviant patterns through which they can achieve more self-accepting attitudes (Kaplan, 1980).

The process of drug involvement

Our proposed model, illustrated in Figure 1, is based on a development damage view of the effects of child physical and sexual maltreatment (Garbarino and Gilliam, 1980; Green, 1981; Raymond, 1981; Steele, 1982). According to the model, children's physical and sexual abuse represent mutually related, antecedent influences on illicit drug use. The curved arrow between physical abuse and sexual victimization indicates that these two variables can be related (National Center on Child Abuse and Neglect, 1978; Bach and Anderson, 1979; Garbarino and Gilliam, 1980). Physical and sexual abuse variables are treated as distinct, but related, dimensions in the model in order to allow for the study of differential relationships for each type of maltreatment. For example, physical abuse may be associated with lowered self esteem, whereas experiences of sexual abuse may convey mixed messages regarding self worth. The inclusion of both physical and sexual abuse variables in the model provides for the examination of the potentially
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Figure 1. Structural model of lifetime drug use with self-derogation as a mediator of physical abuse and sexual victimization. Unstandardized coefficients (standardized in parenthesis). *P < 0.05.

divergent structural relations between each type of maltreatment and drug use. In addition, to a potentially direct relationship between child maltreatment and drug use, the model includes a mediator variable of self-derogation.

Physically and sexually abused children are seen to suffer from an "abnormally poor self-image" (Wick, 1981, p. 238), "poor self-concept" (Raymond, 1981, p. 247), "self-hatred and low self-esteem" (Green, 1981, p. 154), and to have their "self-esteem ... lowered" (Steele, 1982, p. 98). Furthermore, Garbarino and Gilliam (1980, p. 155) find that child victims of sexual abuse "suffer psychological traumas that warp their relationships" with others; and Finkelhor's (1984, p. 193) further analysis of his college student survey data set leads him to conclude that "the reduction in self-esteem among victims of childhood sexual abuse is a result of the experience itself and its aftermath".

Abused children in these troubled circumstances appear to be affected in a number of adverse ways. Traumatized and deprived of important relationships and experiences that contribute to effective socialization and the development of competence, abused children can come to feel the world is an unsafe place (Garbarino and Gilliam, 1980; Green, 1981); be ill-equipped for meaningful relationships with other people (Newell, 1934; Radke, 1946); and have low self-esteem (Satir, 1972; Green, 1981; Raymond, 1981). They face life with less confidence and more mistrust, and are more confused, discouraged, cognitively impaired, insecure and, generally, in pain than children reared with parental acceptance and support (Garbarino and Gilliam, 1980; Raymond, 1981).

Abused children's negative self images and physical and psychological pain can be expected to lead to a number of adverse development outcomes, including involvement in illicit drug use. For those who find the world a very
painful place, drugs are often taken in an attempt to escape from the pain or as a form of self-medication (Streit, 1974; Houten and Golembiewski, 1976; Garbarino and Gilliam, 1980). In addition, as discussed earlier, self-derogation, which is experienced as distressful (Kaplan, 1980), is included in the model as a mediator of the effect of physical abuse and sexual victimization on illicit drug use.

The variable of race (black vs. mainly white) was also considered in the analysis, but omitted from Figure 1 in the interest of clarity. Previous exploratory analysis conducted by Dembo, Dertke, Borders, Washburn and Schmeidler (1985) revealed that black youths in this sample had significantly lower drug use levels than whites. Exploratory analyses of the role of race were conducted in which direct structural relationships were included between the exogenous variable of race with each variable depicted in Figure 1.

We are aware that the model represents a somewhat restrictive specification of a complex set of interacting, developmental influences on the youths’ drug use; and that the literature we have reviewed is more suggestive than definitive in its specification of the consequences of physical or sexual abuse. However, the model affords a parsimonious attempt to identify theoretically derived, key linkages between child maltreatment and illicit drug use, which, if empirically confirmed, can pave the way for additional, more focused efforts in this important area.

Assessing gender effects

Physical abuse, sexual victimization and self-derogation are potentially important factors from which insight can be obtained into youths’ use of illicit drugs. However, these variables need to be incorporated into an analysis that fully explores gender group differences that may exist in the magnitude and structural relationships among them. For example, Alfaro (1981) determined that 25 per cent of the boys compared to 17 per cent of the girls in Erie, Kings, Monroe, and New York (Manhattan) counties in his 1950 sample who had at least one founded, official report of maltreatment were later reported to the courts as delinquent or ungovernable. Finkelhor (1979) and Garbarino and Gilliam (1980) find that girls have higher rates of sexual victimization than boys. Kaplan (1980) reports a stronger relationship between self-derogation and deviant behavior for boys than girls.

Relevant theory (Jessor and Jessor, 1977; Kaplan, 1980) leads to the expectation that problem behavior in females is more of a normative departure than for males. Our society tends to be more protective of the interests of females, than males—who are more likely to be referred to criminal justice agencies. Females who become involved in the criminal
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justice system tend to have more serious and extensive behavior difficulties than their male counterparts.

In light of the differential behavioral difficulties and differential prevalence and implications of sexual victimization for girls and boys, structural relationships among the dimensions in Figure 1 need not be equivalent for both gender groups. Possible gender differences include different: (a) average levels of response, (b) variability of the measures, (c) structural relationships, and (d) unexplained variation across gender groups. In order to test for possible different structural models, the structural relationships in the proposed model were estimated separately for the male and female youths (Jöreskog and Sörbom, 1979, 1983). The multiple group analytic strategy enabled us to test the adequacy of the model within each gender group. If the model is acceptable within each group, an hypothesis of invariant process across the two gender groups will be tested.

Thus, the analytic strategy addresses two key concerns. First, we test the validity of the model within each gender group. Second, given empirical support for the validity of the model within each gender group, we test the invariance of the structural relations across gender groups. That is, we test the equivalence of the structural relationships for males and for females. If invariance can be demonstrated, a single model applies to both gender groups.

METHOD

Sample

The data were drawn from a systematically selected cohort of 145 detainees housed at a modern, state operated, regional facility in a southeastern state, for at least 96 hours between mid-June and the end of September 1984. A 96 hour threshold was established to give the youths a chance to become adjusted to the center, in order to increase the validity of our psychological/ emotional functioning measures (Gibbs, 1983). The sample selection procedures, which are detailed elsewhere (Dembo et al., 1985) enabled us to identify and interview 36 status offenders (i.e. youths with a history of court referrals for truancy, being a runaway or ungovernable) and 109 juvenile delinquent youths (youths who had been adjudicated delinquent or otherwise judicially handled on one or more criminal charges).

Subjects

All eligible youths took part in the voluntary interviews. We believe this high response rate reflected their belief in the integrity of the researchers, the potential value of the project, and the efforts that were taken to protect the confidentiality of their answers. The youths were informed that the purpose
of the project was to learn how the needs of youths in detention could be better met, and to obtain their ideas about how the services at the facility could be improved. The youths were informed that their interview material would be assigned unique identification numbers which made it impossible to determine who they were; and that, by statute, we were protected against releasing the youths' answers to federal, state or local agencies.

A similar proportion of males (52 per cent) and females (48 per cent) was represented in the study. The youths averaged 15 years of age (S.D. = 1.39). A majority of the youths were white (63 per cent), 35 per cent were black, and two per cent were members of an "other" ethnic group. Most youths (77 per cent) lived in the urban area where the detention center is located or its suburbs. Seventy-five per cent of the detainees were juvenile delinquents, and 25 per cent were status offenders.

The occupation level of the youths' head of household was used to index the socioeconomic status (SES) of their families. These data were coded according to U.S. Bureau of Census occupational status scheme (U.S. Bureau of Census, 1983), with additional categories added to place youths whose families were supported by non-occupational sources (e.g. public assistance, divorce settlements) or for whom no occupational information was available. The youths' families tended to be low or moderate in SES. For example, 15 per cent of the families were under public assistance/disability support. Only 7 per cent of the heads of household held an executive, professional or technician type job; 14 per cent were in service occupations (e.g. cooks, waiters/waitresses); 29 per cent were skilled or semi-skilled workers, and 10 per cent were unskilled laborers.

Measures

In developing and pretesting the interview form, care was taken to include psychometrically sound item sets that were created and refined by other researchers. Averaging one hour to complete, the interviews gathered a wide range of information on the detainees. In regard to the concerns of the present paper, four sets of questions were used to measure physical abuse, sexual victimization, self-derogation and illicit drug use.

Physical abuse

Adapted from the work of Straus and his associates (Gelles, 1979; Straus, 1979; Straus, Gelles and Steinmetz, 1980; Straus, 1983), six items were used to determine the youths' physical abuse experiences with an adult (someone over the age of 18). The youths were asked whether ("no" = 1, "yes" = 2) they had: (1) been beaten or really hurt by being hit (but not with anything), (2) been beaten or hit with a whip or strap, (3) been beaten or hit with something "hard" (like a club or stick), (4) been shot with a gun, injured with
a knife, or had some other "weapon" used against them, (5) been hurt badly enough by an adult to require (need) a doctor or bandages or other medical treatment, (6) spent time in a hospital because they were physically injured by an adult.

Forty-six to 68 per cent of the youths claimed to have had the physical abuse experiences noted in items 1, 2, 3, or 5 above. Fifty-one per cent of the youths claimed three or more of these experiences.

Factor analysis, using the principal factor method, was undertaken on the intercorrelations of the six physical abuse items as a data reduction procedure (Kim and Mueller, 1978) to see how they clustered. One main principal factor, accounting for 28 per cent of the variance, was isolated by this procedure. Each of the items loaded significantly and positively on this factor. Reflective of this result, the single factor of physical abuse exhibits adequate reliability (alpha = 0.68).

Regression factor scores (Kim and Mueller, 1978) were calculated, and used for further analyses. According to the manner in which the factor score was derived, the higher the score, the more, different types of physical abuse experiences reported by the youths.

**Sexual victimization**

Based on the work of Finkelhor (1979), we asked a number of questions regarding the youths' history of sexual victimization by an adult (someone over the age of 18), including strangers, friends or family members. Each youth was asked if he/she ever had a sexual experience with an adult. Respondents answering "yes" to this question were then asked how many of these experiences they had. Youths claiming more than one such experience were asked to think back to the first time they had a sexual experience with an adult. All youths having one or more sexual experience with an adult were asked a number of questions regarding the first incident. These questions asked about their age, the nature of the relationship with the adult, what occurred during the incident, whether the youth was forced or threatened to take part and their reaction to the experience.

In line with Finkelhor's (1979) operational definition, all children who were 13 years of age or younger at the time of their first sexual experience with a person over the age of 18 were considered to have been sexually victimized. In addition, youths whose first sexual experience with an adult took place between 14 and 17 years of age, and who claimed they were forced or who reacted to the experience with shock or fear or had this experience with a parent or stepparent, were also considered to have been sexually victimized. Youths who had not been sexually victimized were coded "0", sexually victimized youths coded as "1".
Overall, 46 per cent of the youths were sexually victimized one or more times in their lives. For 83 per cent of the victimized youths, victimization first occurred at age 13 or younger.

**Self-derogation**

Rosenberg (1965) is to be credited with establishing a tradition of work in this country which examines the nature, distribution, family, psychological and interpersonal correlates, and social consequences of self-esteem among various population groups. Kaplan’s successful use of Rosenberg’s ten items in studying adult psychological adjustment (Kaplan and Pokorny, 1969), led him to use a number of these items in his inquiry into the relationship between self-attitudes and deviant behavior (Kaplan, 1980).

Based upon this experience, we used Rosenberg’s (1965) ten items, with slight modification, to probe the youths’ lack of self-esteem. Each item involved five response categories (strongly agree, agree, not sure, disagree, strongly disagree). The ten items, with the self-derogating response indicated in parentheses, are as follows: (1) I feel that I’m a person of worth, at least equal with others (disagree), (2) I feel that I have a number of good qualities (disagree), (3) All in all, I am inclined to feel that I am a failure (agree), (4) I am able to do things as well as most other people (disagree), (5) I feel I do not have much to be proud of (agree), (6) I take a positive attitude toward myself (disagree), (7) On the whole, I am satisfied with myself (disagree), (8) I wish I could have more respect for myself (agree), (9) I certainly feel useless at times (agree), (10) At times I think I am no good at all (agree).

A factor analysis, using the principal factor method, of the ten self-derogation items produced one main principal factor that accounted for 26 per cent of the variance. Each of the self-derogation items loaded significantly on this factor. The items display satisfactory reliability (alpha = 0.75). Regression factor scores (Kim and Mueller, 1978) were calculated for the youths in the same manner as for the physical abuse cluster, and used in the analyses. High scores reflect greater self-derogation.*

*It should be noted that Kaplan and Pokorny (1969) found two clusters with eigenvalues equal to or greater than 1.0 in their factor analysis of the 10 self-derogation items, which accounted for 45 per cent of the variance in the data. The factors were rotated to varimax criteria to improve their interpretation. The two items with self-characterizations as "no good at all" and "useless" loaded highest on the first varimax factor (with factor loadings of 0.77 and 0.76, respectively). The second varimax factor, which loaded highest on "I feel that I'm a person of worth . . ." (0.69) and "I feel that I have a number of good qualities" (0.77), reflects a "conventional defense of individual worth" (Kaplan and Pokorny, 1969, p. 425). Although we lack data to identify why our factor analysis results differ, it is likely that the lack of consistency is due to the very different characteristics of the samples that were used in the two studies. In contrast to the adolescents we interviewed, who were in contact with the criminal justice system, Kaplan and Pokorny's (1969) data derived from a random sample of 500 noninstitutionalized adults.
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Drug use

Using questions employed in the 1979 NIDA national survey on drug abuse (Fishburne, Abelson and Cisin, 1980), the youths were asked a variety of questions regarding their use of nine different illicit drugs: (1) marijuana/hashish, (2) inhalants, (3) hallucinogens, (4) cocaine, (5) heroin and the nonmedical use of (6) barbiturates and other sedatives, (7) tranquilizers, (8) stimulants, and (9) analgesics. (Information was also gathered on the youths' use of tobacco and alcohol, but these data are not considered here). Administration of the drug use questions followed the NIDA survey procedures.

Among other questions, the youths were asked to indicate their age of first use of each of the illicit drugs, and the number of times they had used each drug in their lifetimes (never used, used 1 or 2 times, used 3 to 10 times, used 11 to 99 times or used 100 or more times). A principal factor analysis of the intercorrelations of the claimed frequency of lifetime use of the nine illicit drugs produced one main factor. Each drug category loaded significantly on this factor, which accounted for 54 per cent of the variance in the data and which had high reliability (alpha = 0.90). Regression factor scores for this cluster were calculated for the youths in the same manner as described earlier, and used in the analyses. The higher the score, the greater the claimed lifetime frequency of use of the various drugs.

RESULTS

As can be seen in Table 1, sex differences were found in the variables included in the model. Females reported greater self-derogation than the males [t (d.f. = 143) = 2.79, P < 0.01]; and a higher prevalence of sexual

Table 1. Correlations (r), means, and standard deviations of variables included in the model for male and female detainees

| Variable | Males (n = 76) | | | | | Females (n = 69) | | | |
|----------|---------------|---|---|---|---|-----------------|---|---|---|---|---|
| Mean     | S.D.          | 1 | 2 | 3 | 4 | Mean            | S.D.|
| 1. PHYABUSE | -0.12         | 0.83 | 0.26* | 0.38* | 0.34* | PHYABUSE        | 0.13 | 0.88|
| 2. SEXVIC  | 0.33          | 0.47 | -0.01 | 0.18 | 0.34* | SEXVIC          | 0.59 | 0.49|
| 3. SELFDERO| -0.20         | 0.91 | 0.10 | -0.14 | 0.32* | SELFDERO        | 0.22 | 0.87|
| 4. DRUGS   | -0.14         | 1.00 | 0.32* | 0.34* | 0.18 | DRUGS           | 0.15 | 0.92|

The physical abuse (PHYABUSE), self-derogation (SELFDERO) and lifetime frequency of use of illicit drugs (DRUGS) factor scores were calculated in such a manner that the higher the score, the more the experience or behavior reflected in the factor. Sexual victimization was coded as 0=no, 1=yes.

*P < 0.05, two-tailed test.
victimization (59 per cent) than did males (33 per cent), \( \chi^2 = (1) = 9.22, P < 0.01 \). Although only marginally statistically significant, females tended to report a greater number of different physical abuse experiences \( [t \ (d.f. = 143) = 1.78, P < 0.10] \), and a greater frequency of illicit drug use than the males \( [t \ (d.f. = 143) = 1.84, P < 0.10] \). The overall pattern then is one of elevated means for females relative to males.

Table 1 also contains the correlations among the four variables for the male and female detainees. Comparing across gender groups, the coefficients vary in their magnitude. These findings support our approach of separately testing the hypothesized structural model within each gender group before testing the model across groups. The variation in correlation magnitude across groups does not preclude equivalence of the structural models, because these estimates contain sampling error.

The structural model, illustrated in Figure 1, was analyzed through maximum likelihood estimation using program LISREL-VI (Jöreskog and Sörbom, 1983) for the estimation and testing of model parameters. A multiple group analysis of the covariance matrices for males and females was used because it allowed for the possibility of disparate processes of drug involvement for the two gender groups. In order to demonstrate equivalent structural models for males and females, the multiple group analytic strategy allows for a test of equivalent structural parameters for both groups. We also included a constraint of equal variances. The more conventional procedure of multiple regression analysis was not used because the equivalence between the structural parameters for males and females cannot be formally tested.

In order to demonstrate equivalence between the two groups, it must be shown that there are equal structural coefficients. We follow the recommendation of Jöreskog and Sörbom (1979) and use the chi-square goodness of fit test to evaluate the equivalence of structural parameters across groups. The chi-square goodness of fit statistic provides a test of the fit of the structural model to the observed covariance matrix. A nonsignificant chi-square test provides evidence of an acceptable fit of the structural model to the data.*

The mediator model, illustrated in Figure 1, is just identified for each group. By placing equality constraints across groups, the model is overidentified. This test of equivalent variances and structural parameters across groups produced a nonsignificant chi-square test, \( \chi^2 (10) = 10.97, P < 0.36 \). The result of this most rigorous test of the model suggests that males and females share equivalent structural models of lifetime drug use in which

*The equivalence of parameters across groups can be tested by computing a chi-square for a model with no constraints across groups, and a second chi-square with equality constraints across groups (Jöreskog and Sörbom, 1979). The difference in chi-square values is approximately distributed as chi-square. A significant change in chi-squares suggests that the null hypothesis of homogeneous parameters across groups should be rejected.
self-derogation is a mediator variable. As reported in Figure 1, all of the unstandardized structural parameters were statistically significant, with the exception of the direct effect of sexual victimization on self-derogation and the covariance between physical abuse and sexual victimization. Self-derogation mediated the effect of physical abuse but not sexual victimization on lifetime drug use. However, both physical abuse and sexual victimization had significant direct effects on lifetime drug use. (The variances of the four variables are as follows: physical abuse = 0.76, sexual victimization = 0.23, self-derogation = 0.86 and lifetime frequency of use of illicit drugs = 0.94).

A second model was developed in which the variable of race [Black vs. nonblack (white)] was specified as a cause of all other measures. This model allows for the possibility that race is a common cause of all measures. For example, race may influence the incidence of physical abuse and sexual victimization as well as lifetime drug use. Again, a multiple group analysis was performed and we tested whether the process was invariant for males and females.

The results from the multiple group analysis produced a nonsignificant chi-square, $\chi^2 (15) = 12.82, P < 0.62$. The nonsignificant chi-square value is consistent with the previous result and, consequently, we accept the hypothesis of equivalent variances and structural parameters for both males and females. Moreover, the only significant structural path from race was to lifetime drug use. The inclusion of race did not greatly affect the pattern of results in Figure 1. Based on these results, we conclude that race does not affect physical abuse, sexual victimization, or self-derogation for this sample. Furthermore, an equivalent structural model, with or without the inclusion of race, held for both males and females.*

**DISCUSSION**

The results from the structural analysis of the model in Figure 1 provide strong support for the validity of the hypothesized model across gender groups. Within each gender group, the results of the structural analysis support the validity of the model among this sample of high-risk adolescents. Most importantly, the findings of this study support the equivalence across gender groups of the structural relationships among abuse, self-derogation, and drug use. Both the male and female detainees shared similar magnitudes

*The socioeconomic status of the youths' families, and their status offender or juvenile delinquent referral histories, have low or near zero magnitudes of association with the four variables in the model for both gender groups. The low magnitude of correlations with SES may be due in part to the restricted range for this variable, i.e. largely low SES. Hence, these variables are poor candidates for the analysis that was completed involving the variable of race.
of variation on each dimension in the model, similar structural relationships, and similar degrees of residual variation. The finding of equivalence of these structural parameters across gender groups, based on this most rigorous test, provides support for a parsimonious model. We conclude that a single structural model successfully describes the relationships among the two types of child maltreatment, self-derogation, and illicit drug use for both males and females.

The finding of parsimonious process across gender groups provides an important substantive contribution to the field, and the evidence for this conclusion merits careful review. In order to place this finding in proper perspective, it is necessary to distinguish between two types of possible differences between gender groups. The most widely researched source of gender effects pertains to the mean level of behavior. For example, to what extent do males and females experience similar histories of child maltreatment? Among our sample of adolescents in a juvenile detention center, we find evidence of elevated means for females relative to males across our measures of child abuse, self-derogation, and illicit drug use. Thus, we conclude that males and females differ with respect to average prevalence rates or mean level of behavior across these dimensions.

Although males and females experienced different degrees of child maltreatment, self-derogation, and illicit drug use, we find support for a common process among these dimensions across gender groups. Identical linkages among variables were found for both males and females. For instance, females experience almost twice the prevalence rate of sexual victimization than males. Despite this gender effect, the same structural relationships describe the association between sexual abuse and the other dimensions for both gender groups. Thus, although females were most at risk for child sexual victimization, both males and females reported similar psychological and behavioral correlates and outcomes of this experience. The finding of equivalent structural models across gender groups illustrates the importance of using sophisticated analytic techniques for the study of process.

Within the model for both gender groups, all structural relations were found to be significant with two exceptions. Physical abuse and sexual victimization were not significantly related. Although both physical and sexual abuse can occur within the same households, such a pattern was not prevalent among this sample. Reports of both physical and sexual abuse may reflect extremely dysfunctional households which are seriously troubled psychologically and socially in a number of areas. Perhaps such dysfunctional households were not highly represented in this sample. This finding suggests a productive course for future research.

The effect of physical abuse, but not sexual victimization, was mediated by
self-derogation. This divergence in structural relationships is perhaps due in part to the psychological implications accorded to victims of each type of maltreatment. Child victims of physical abuse often perceive themselves to be bad, worthless and deserving of the "punishment" they have received (Garbarino and Gilliam, 1980; Green, 1981). On the other hand, victims of sexual abuse are “valued” by their abusers, who often suffer from early economic deprivation, as well as a history of emotional impoverishment (and, if married, a poor marital relationship) (Weinberg, 1955; Gebhard, Gagnon, Pomeroy and Christenson, 1965; Meiselman, 1978; Garbarino and Gilliam, 1980); and seek to prolong the affair—especially in cases of incest (Meiselman, 1978).

For both male and female detainees, sexual victimization was associated with an adverse behavioral outcome, but not the negative psychological consequence of lower self-worth. This controversial finding of a lack of relationship between a psychological state and sexual victimization needs to be considered in the proper perspective. The contemporaneous measurement of these variables does not allow for the assessment of the psychological impact at the time of victimization. The finding of a negative long-term psychological consequence of physical abuse but not sexual abuse merits further research; and underscores the importance of separately considering the influence of these two types of child maltreatment. Furthermore, the divergent relationships for physical and sexual abuse suggest that intervention strategies need to be sensitive to the type of child maltreatment, and perhaps distinguish between the immediate and long-term psychological implications of the experience.

With respect to the relative impact of child maltreatment on illicit drug use, physical abuse had a primarily direct effect on drug use. The magnitude of the direct effect was 0.248, whereas the mediated effect, through self-derogation, was 0.043. In addition, the influence of sexual victimization on illicit drug use was direct.

Importantly, race affected only the incidence of illicit drug use, but was not significantly related to any other dimension in the model. Such a result supports the view that the model pertains to low and middle SES high-risk adolescents, regardless of race. However, characteristics of this sample restrict the test of racial differences to black vs. white (only 2 per cent of the sample were classified as neither black nor white). It would be important to confirm the findings of this study using diverse racial and ethnic groups.

The contemporaneous measurement strategy used in this study precludes definitive conclusions regarding the temporal ordering of the variables. Dembo et al. (1985) offer evidence regarding the temporal order of first experience with child maltreatment and drug use. For instance, they report that on the average, only 13 per cent of the detainees report substance use
prior to the first experience of sexual victimization. It should be noted that the temporal ordering of child maltreatment and drug use may reflect a developmental process, but not necessarily a casual relationship. Younger children are at greater risk of child maltreatment than for illicit drug use. It is possible that there is an unknown influence that is common to both child maltreatment and later drug use. We have shown, however, that the relationship is not simply due to SES for these detainees.

In order to more fully explore the developmental process and temporal orderings in the model, it would be important to further test the model using a longitudinal approach. In addition, the high-risk sample of adolescents considered in this study are all institutionalized, and come largely from low SES family environments. It would be important for further research on this model to consider noninstitutionalized as well as institutionalized youths, from a broader range of SES backgrounds.

The maximum likelihood solution produced by program LISREL-VI provides an estimate of the coefficient of determination for the structural equations. This parameter is analogous to the squared multiple correlation of least squares solutions. The coefficient of determination for the model in Figure 1, specifying invariant model parameters across gender groups, was 0.27. Although this value suggests that the model explains a substantial proportion of variance, it is clear that additional information is needed to more fully explain the youths’ involvement in illicit drug use.

At the same time, our results strongly support the inclusion of measures tapping youths’ physical abuse and sexual abuse experiences in conceptual frameworks seeking to explain their involvement in illicit drug use. The recognition of the potential importance of these experiences would correct a gap in our current state of knowledge.

A variety of theoretical perspectives have been formulated to account for drug use among youths (see, for example: Lettieri, Sayers and Pearson, 1980). On a general level, one can contrast disturbed personality views, which argue that nonmedical drug use is the result primarily of disturbances in individuals’ ability to relate to others and copy with anxiety and stress, and sociocultural theories, which view illicit drug use as motivated, peer oriented, adaptive and environmentally embedded behavior, reflecting a commitment to a lifestyle that is socially and culturally valued. The older, more established, disturbed personality perspective can be traced to the early work of Ausubel (1958), Felxi (1944), Glover (1949), Kolb (1925), and Rado (1957), and has more recently been reflected in the research completed by Chein, Gerard, Lee and Rosenfeld (1964). Studies of adolescent/young adult drug users in the late 1950s and 1960s in the inner-city areas of Oakland (Blumer, Sutter, Ahmed and Smith, 1967), Chicago (Finestone, 1957), New
York City (Feldman, 1968; Preble and Casey, 1969), and Boston (Felman, 1973) raised serious concerns regarding the primary role of personality dynamics in illicit drug use; and led to an increased pursuit of a variety of sociocultural studies, incorporating interpersonal variables, to gain a more complete understanding of this phenomenon.

Kandel (1980) distinguishes between four major theoretical frameworks that have been developed to account for youths' involvement in drug use: (1) problem behavior proneness (Jessor and Jessor, 1977); (2) social learning theory (Burgess and Akers, 1966; Akers, Krohn, Lanza-Kaduce and Radosevich, 1979; Akers, 1985); (3) self-derogation theory (based on the self-esteem motive) (Kaplan, 1980; Kaplan, Martin and Robbins, 1982); and (4) socialization theory (Kandel, 1973, 1974, 1975, 1980; Kandel et al., 1978; Kendel and Adler, 1982). The recent work of Kaplan and his associates (Kaplan et al. 1982, p. 276) confirms that "these four frameworks overlap", and incorporate elements of social control, containment, labeling, subcultural and strain theories of deviance. Further, the four frameworks share a common interest in identifying the connections tying individuals to conventional norms and behavior; and, on the other hand, attempt to elucidate the processes by which dissaffiliation from conventional social activities is initiated, reinforced, and maintained (Johnson, 1979).

As the results reported in this paper highlight, youths' physical abuse and sexual victimization experiences merit serious consideration among the influences leading them to become disengaged from conventional norms and behavior, and to initiate various patterns of deviant behavior. This is especially the case for youngsters growing up in high-risk environments characterized by poverty and negligent parents who often have a history of antisocial behavior. As Robins and her associates (Robins, 1966; Robins and Ratcliff, 1978/79) document, childhood problem behavior and psychologically damaging experiences are remarkably predictive of antisocial behavior in adulthood among high-risk white and black youths.

The increasingly theoretical and methodological sophistication of research into the etiology of drug use promises to result in more parsimonious and comprehensive conceptual frameworks. The integration of various childhood experiences into explanatory models elucidating the development of various patterns of drug use in diverse environmental settings can be expected to lead to more focused, deeper reaching and effective intervention programs than exist currently (see also: Simcha-Fagan, Gersten and Langner, 1986). Such an effort represents a challenge to our imagination and our desire to understand more fully, and reduce the prevalence of, the adverse development outcomes of youths whose disaffiliation from conventional society can be traced to the traumatic and troubled experiences of their childhood.
We wish to express our thanks to the youths who participated in our study. This report is one product of our promise to them that we would present their needs to those who would listen.

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