Published in final edited form as:

Soc Serv Rev. 2002 December ; 76(4): 663–685.

Identifying and Predicting Offending Trajectories among Poor Children

Ick-Joong Chung,

Duksung Women's University and University of Washington

J. David Hawkins,

University of Washington

Lewayne D. Gilchrist,

University of Washington

Karl G. Hill, and

University of Washington

Daniel S. Nagin

Carnegie Mellon University

Abstract

Using data from the Seattle Social Development Project, we identify childhood predictors of offending trajectories among poor children. Five trajectories are identified: nonoffenders, late onsetters, desisters, escalators, and chronic offenders. Among initial nonoffenders, late onsetters are distinguished from nonoffenders by early alcohol drinking. Among youths already delinquent at age 13, escalators are distinguished from desisters by poor family management, family conflict, association with antisocial peers, the presence of troubled children in their neighborhoods, and drug availability. In contrast to prior findings for a general urban sample, family factors significantly predict desistance from offending by age 18 in children from low-income families.

There is general agreement that poverty exposes children to a range of environmental hazards and has deleterious effects on children's development (Loeber 1990;Huston 1991*b*). Poverty is associated with well-documented negative developmental outcomes for children such as low academic achievement, early school dropout, and poor mental and physical health (Werner 1985;Velez, Johnson, and Cohen 1989;Huston 1991*a*;Chase-Lansdale and Brooks-Gunn 1995;Zill et al. 1995). Poor children are also overrepresented among early-onset offenders (Schorr and Schorr 1988;Duncan 1991;Huston 1991*b*;Duncan, Brooks-Gunn, and Klebanov 1994;Smith and Zaslow 1995;Brooks-Gunn, Duncan, and Aber 1997).

It generally is assumed that a propensity for offending is often rooted in a social context of poverty (Wright et al. 1999). The assumed negative effect of poverty on behavioral outcomes is consistent with researchers' intuitions as well as general public opinion. However, the empirical evidence regarding poverty's deleterious effects on children's behavioral outcomes is mixed, unlike evidence on academic or cognitive outcomes. While a number of studies find

The writing of this article was supported in part by grants from the Office of Juvenile Justice and Delinquency Prevention (#1999-JN-FX-0001), the National Institute on Drug Abuse (#DA/AA 03995 and #R01DA09679), and the National Institute of Mental Health (#1R24MH 56599). This article is also based on work supported by a grant from the National Science Foundation (#SBR-9513040) to the National Consortium on Violence Research. Earlier versions of this article were presented at the annual meeting of the Society for Social Work and Research, Charleston, S.C., January 29–31, 2000; at the Twelfth National Symposium on Doctoral Research in Social Work, Columbus, Ohio, April 14, 2000; and at the annual meeting of the American Society of Criminology, San Francisco, November 15–18, 2000.

that poverty is significantly associated with a higher incidence of negative behavioral outcomes, other studies fail to replicate these findings (for a review of these mixed findings, see Mayer and Jencks 1989; Duncan and Brooks-Gunn 1997; Gephart 1997). These mixed findings in current research at the least suggest substantial individual differences among poor children and differential effects of mediating factors related to poverty on individual children. More research is needed to understand individual differences of children in response to the context of poverty.

The question of the number of distinct offending trajectories remains a matter of considerable debate (D'Unger et al. 1998; Tolan and Gorman-Smith 1998). The developmental taxonomic theories of both Terrie Moffitt (1993) and Gerald Patterson (Patterson and Yoerger 1993, 1997; Patterson 1996) focus on two categories of offenders: early-onset persisters, who start their offending careers early and continue to commit offenses over many years, and late-onset desisters, who start their offending careers later and desist from such offending during adolescence. Two additional categories of offenders are logically possible but have not been discussed in current taxonomic theories: early-onset desisters, who start their offending careers early but outgrow offending during adolescence, and late-onset persisters, who do not have a history of offending early in their lives but begin offending relatively late and continue to commit offenses into adulthood. Little attention has been given to testing formally whether the full range of logically possible trajectory types exists.

In this line of research, Ick-Joong Chung et al. (2002) identify different offending patterns in a multiethnic urban sample of young people from a wide variety of socioeconomic backgrounds. Five groups are identified: nonoffenders, late onsetters, desisters, escalators, and chronic offenders. This study is the second in a series of investigations of different offending patterns. An objective of this article is to investigate empirically how many offending patterns are found among children from low-income families.

Studies demonstrate that many individuals who engage in offending share common risk profiles (Loeber 1990; Moffitt 1993; Elliott 1994; Loeber and Hay 1997; Farrington 1998; Hawkins et al. 1998; Lipsey and Derzon 1998; Herrenkohl et al. 2000). However, many studies fail to explain individual differences in developmental outcomes among children with seemingly similar risk profiles. Why do some poor children appear to outgrow early offending, while others adopt increasingly serious patterns of offending that escalate eventually into life-course-persistent antisocial lifestyles? One possibility is that these children experience different types or levels of mediating factors. Researchers hypothesize that types and levels of mediating factors may affect offending patterns in either a risk-aggravating or a risk-buffering way (Werner and Smith 1992; Kirby and Fraser 1997; Loeber and Hay 1997; McLoyd 1998; Fraser, Richman, and Galinsky 1999).

Differences in offending trajectories of children from low-income families may be explained by differences in important mediating factors experienced by each child. Poor children may experience variation in the extent to which positive mediating processes are disrupted and negative mediating processes are aggravated. Poor children are more likely to be early-onset persisters, because poverty cooccurs with important risk factors for offending but may also limit protective mediating factors (Schorr and Schorr 1988; Huston 1991a; Duncan et al. 1994). Some poor children, however, may emerge as members of the nonoffender or desister group if protective mediating factors in their environments buffer what would otherwise be lasting negative effects of poverty.

The mediating factors examined in this study are derived from the social development model (SDM; Hawkins and Weis 1985; Farrington and Hawkins 1991; Catalano and Hawkins 1996). The SDM combines hypotheses of three leading theories in criminology: social control theory

(Hirschi 1969), social learning theory (Burgess and Akers 1966; Bandura 1977; Akers 1985), and differential association theory (Sutherland and Cressey 1978). It should be noted that position in the social structure does play an exogenous predictive role in the SDM. The SDM hypothesizes that the continuation of offending across developmental periods occurs not because early delinquent youths are predisposed to offending as a result of poverty but because they encounter antisocial influences in various domains that reinforce offending. In contrast, the discontinuation of offending occurs during adolescence if youths encounter prosocial influences that inhibit offending, even though they have already committed offenses in childhood. Although the structural relationships hypothesized by the SDM are not tested here, we examine key constructs, including early individual characteristics and other social developmental constructs specific to the antisocial and prosocial paths identified in the SDM. The SDM previously has not been applied to examine individual differences among poor children. We are interested in the extent to which the SDM constructs are useful in explaining individual differences in developmental trajectories of offending among children from low-income families.

The purpose of this study is twofold. First, it identifies distinctive patterns of offending among poor children. Analyses are carried out using semiparametric group-based modeling (Nagin and Land 1993; Nagin 1999). Second, this study applies multinomial logistic regressions to identify the social developmental constructs that distinguish offending trajectory groups from one another.

Method

Sample

This study uses data from the Seattle Social Development Project (SSDP), a longitudinal study of the development of prosocial and antisocial behaviors. The study population includes all fifth-grade students ($n = 1,053$) in 18 Seattle public elementary schools serving predominantly high-crime and low-income neighborhoods. From this population, 808 students (77 percent) consented to participate in the longitudinal study and constitute the SSDP sample (Hawkins et al. 1997; Battin et al. 1998; Hawkins et al. 2002).

Participants and their parents took part in annual assessments through 1991. Participants were assessed again when they were 18 years old. Teachers took part in annual assessments through 1989. Data from official school records were also collected. Initially, participants completed group-administered questionnaires in their classrooms. Beginning in 1988, participants were interviewed in person and asked for their confidential responses to a wide range of questions regarding family, peers, school, and neighborhood, and their attitudes toward and experiences with substance use, delinquency, and violence. The interviews took about 1 hour. Early in the study, youths received a small incentive (e.g., an audiocassette tape) for their participation, and later they received monetary compensation. Participants were tracked and interviewed wherever they moved. More than 90 percent of all participants were retained for at least six of the eight data assessment waves. Data used in this study correspond to assessments carried out when subjects were 10, 11, 12, 13, 14, 15, 16, and 18 years old. We use offending trajectories from ages 13 through 18 as a dependent variable in logistic and multinomial logistic regressions. Predictor variables are from interviews at ages 10–12 (in fall and spring of grade 5 and in spring of grade 6 for those progressing normally in school).

The SSDP has a gender-balanced and ethnically diverse sample. Of the original 808 study participants, 396 (49 percent) are female, 372 (46 percent) are European Americans, 195 (24 percent) are African Americans, 170 (21 percent) are Asian Americans, and 71 (9 percent) are Native Americans or from other ethnic groups. Forty-two percent of the sample reported only one parent present at home in 1985. Approximately 52 percent of participants ($n = 423$) were

from low-income families, as evidenced by eligibility for the National School Lunch–School Breakfast Program at some point in grades 5–7. The present study examines this subsample of children ($n = 423$) from low-income families in the SSDP sample.

The subsample of 423 youths from low-income families examined here consists of nearly equal numbers of boys ($n = 205$) and girls ($n = 218$). Of these children from low-income families, 117 identify themselves as European Americans (28 percent); African Americans (35 percent) and Asian Americans (27 percent) also make up substantial proportions of the low-income subsample. The remaining 10 percent of youths in the low-income subsample are Native Americans (6 percent) or from other ethnic groups (4 percent).

Measures

Dependent variable: offense seriousness scale An offense seriousness scale is used as the dependent variable in semiparametric group-based modeling analysis in order to compensate for the shortcomings of frequency measures of offending (Chung et al. 2002). An offense seriousness scale was computed for each subject at each age from ages 13 through 18 and represents the most serious level of offenses committed that year. The information used for this scale comes from 16 self-report items. Three levels of seriousness of offenses are defined following the seriousness ratings developed by Wolfgang et al. (1985). Level 0 denotes no offenses committed. Level 1 consists of involvement limited to minor offenses: running away from home, picking a fight, throwing objects at people or cars, drawing graffiti, and theft less than \$5. Level 2 consists of involvement in moderate offenses: hitting parents other than in jest or play, hitting teachers, assault, vandalism, buying or holding stolen goods, and theft between \$5 and \$50. Level 3 consists of involvement in serious offenses: robbery, drug selling, breaking and entering, stealing cars, and theft more than \$50. Similar seriousness scales are used in recent analyses (Loeber et al. 1998; Ayers et al. 1999; Chung et al. 2002).

Childhood predictors—Predictors of offending trajectory group membership were all measured at ages 10 (fall of grade 5)–12 (spring of grade 6) developmentally before offending trajectories were measured. The measures are meant to operationalize constructs of the social development model (Hawkins and Weis 1985; Farrington and Hawkins 1991; Catalano and Hawkins 1996). The predictors span individual, family, peer, school, and neighborhood domains of the child's development. Predictor variables used in this study are drawn from youth self-reports, parents' reports, teachers' reports, and school records. The predictor variables consist of theoretically grouped items. For continuous measures, the mean rating of the items comprising the measure of the age 10 through age 12 values is used. All the items are coded so that higher scores indicate more of the predictor. For a complete list of all items in each predictor, see the appendix.

Missing Data Procedures

Across all variables (year by subject by variable), 5.3 percent of the total number of data points are missing. Missing data are almost exclusively because of nonparticipation at a given wave rather than failure to answer specific questions. Missing data because of attrition are relatively few; nearly 94 percent of the original grade 5 sample was interviewed at age 18. Nonparticipation at each of the assessment waves is not related to gender or age 10 lifetime use of tobacco, alcohol, or participation in offenses. It is not consistently related to ethnicity, either.

Many missing data strategies (e.g., listwise deletion, pairwise deletion, and mean substitution) result in unnecessarily reduced sample sizes and biased parameter estimates (Graham, Hofer, and Piccinin 1994; Graham et al. 1997). In order to avoid these problems, the present study uses an alternative missing data technique suggested by Roderick Little and Donald Rubin

(1987): an expectation-maximization (EM) algorithm used with multiple imputation procedures. Those methods provide less biased parameter estimates and correctly estimate standard errors by taking advantage of all available data (Graham et al. 1994;Graham et al. 1997), assuming that the data are missing at random.

Missing data are handled using the NORM program (version 2.02) developed by Joseph Louis Schafer (1997). Missing data procedures are applied to childhood predictor variables only for logistic and multinomial logistic regression analyses because semiparametric group-based modeling, that is, the way we identify offending trajectories, already accommodates missing data (Jones, Nagin, and Roeder 2001). For this study, five data sets are imputed. That number is sufficient given the low percentage of data missing on any given variable in the present study. The five imputed data sets are each analyzed using the SAS System for Windows (version 6.12) program. Coefficients and standard errors from each run are entered back into the NORM program. To derive overall estimates, which are reported here, the NORM program averages the parameter estimates and pools the standard errors from the five runs (see Graham et al. 1994;Graham et al. 1997;Graham and Hofer 2000).

Analysis

Analysis proceeds in two stages. In the first stage, a semiparametric group-based modeling (SGM) approach developed by Daniel Nagin and colleagues (Nagin and Land 1993;Nagin 1999;Nagin and Tremblay 1999;Fergusson, Horwood, and Nagin 2000;Jones et al. 2001) is used to identify developmental trajectories of offending from ages 13 to 18 among poor children. In the second stage, multinomial logistic regression is used to examine the prediction of offending trajectory group membership from the age 10–12 individual, family, peer, school, and neighborhood variables.

Often population heterogeneity (i.e., gender, ethnicity) is observed and can be represented by variables in a model. Even when population heterogeneity is not observed, it can be taken into account by using latent classes (Nagin 1999;Muthen and Muthen 2000). Semiparametric group-based modeling is one of the statistical techniques that can take unobserved heterogeneity into account. Because this modeling allows for cross-group differences in the shape of developmental trajectories, it is especially suited for identifying heterogeneity in types of developmental trajectories (Nagin 1999;Nagin and Tremblay 1999;Hill et al. 2000;Chung et al. 2002). This modeling assumes that the population is composed of a mixture of distinct groups defined by their developmental trajectories. Importantly, SGM fits semiparametric (discrete) mixtures of censored normal, Poisson, zero-inflated Poisson, and Bernoulli distributions to data (Jones et al. 2001), which often reflect the distributions of offenses. The SGM approach is broadly available through a customized SAS macro developed by Bobby Jones, Nagin, and Kathryn Roeder (Nagin 1999;Jones et al. 2001), which is used in the present analysis.

In this study, the censored normal distribution is used for modeling the seriousness scale data. A polynomial relationship is used to model the link between age and offending seriousness. Specifically, a quadratic equation is used:

$$y_{it}^{*j} = \beta_0^j + \beta_1^j \text{Age}_{it} + \beta_2^j \text{Age}_{it}^2 + \epsilon,$$

where y_{it}^{*j} is a latent variable characterizing offending seriousness of subject i at time t given membership in group j , Age_{it} is subject i 's age at time t , Age_{it}^2 is the square of subject i 's age at time t , and ϵ is a disturbance assumed to be normally distributed with zero mean and constant variance s^2 .¹ The model's coefficients β_0^j , β_1^j , and β_2^j determine the shape of the trajectory

and are superscripted by j to denote that the coefficients are not constrained to be the same across the j groups. By freeing the model parameters to differ across groups, the estimation procedure allows for cross-group differences in the shape of developmental trajectories. This flexibility is a key feature of the model, because it allows for the easy identification of population heterogeneity not only in the level of offending seriousness at a given age but also in its development over age (for more description of SGM, see Nagin [1999]).

Model selection requires determining the number of groups that best describe the data, which is complex because a K -group model is not nested within a $K + 1$ group in SGM. The Bayesian Information Criterion (BIC) is used as a basis for selecting the optimal model, since the BIC can be used for a comparison of both nested and unnested models (Kass and Raftery 1995; Raftery 1995). The model with the smallest absolute value BIC is generally chosen, but the BIC tends to favor models with fewer groups because it rewards parsimony. Individuals are then assigned to the group that best conforms to their observed behavior according to the maximum posterior probability of group membership.

Results

Developmental Trajectories of Offending among Poor Children

Semiparametric group-based modeling was used to identify developmental trajectories of offending. In this modeling, the dependent variable is the offense seriousness scale over the interval 0–3 at each age from ages 13 to 18. Using the above procedures, we tested one-, two-, three-, four-, five-, and six-group models of offending trajectories. The results are summarized in table 1. The five-group solution provided the most efficient balance between parsimony and goodness of fit, because the BIC is minimized for the five-group model (model 5a). A modification of the five-group model was then tested to produce a clearer model. A modified five-group model was estimated in which the trajectory of the nonoffender group was constrained to be constant over age and the other four groups followed the quadratic trajectories.² The modified five-group model (model 5b) is the best-fitting model because it has smaller absolute value BIC than model 5a. The analyses reported below are based on the modified five-group model.

Figure 1 shows the observed trajectories of mean offense seriousness at each age for the five groups. These trajectory groups are labeled nonoffenders, late onsetters, desisters, escalators, and chronic offenders. The nonoffender group is composed of individuals who never report any offending. This group represents about 18.6 percent of the sample. The late onsetter group, about 8.5 percent of the sample, reports no offenses at age 13 but gradually increases to low levels of offending. The desister group, about 23.7 percent of the sample, reports low seriousness of offending at age 13 but by age 18 largely desists. The escalator group, about 38.2 percent of the sample, starts off scoring low on offending at age 13 but by age 18 scores higher. Finally, the chronic offender group, about 11.1 percent of the sample, reports serious levels of offending throughout the adolescent period. By age 18, this group reduces their serious offenses but stays at a moderately serious level of offending.

¹The term “latent variable” is used to describe y_{it}^{*j} because it is not fully observed. Thus, this use of the term “latent” is different from that in the psychometric literature, where the term “latent factor” refers to an unobservable construct that is assumed to generate multiple manifest variables.

²This is accomplished by defining the trajectory for the first group with a single parameter (β_0^1 , the constant term only, and thereby setting both β_1^1 and β_2^1 equal to zero).

Demographic Characteristics

Chi-square tests were conducted to determine whether the trajectory groups identified in figure 1 differ demographically. As shown in table 2, offending trajectories among poor children are significantly different by gender and ethnicity ($p < .001$). The prevalence of chronic offenders is greater among boys (16.9 percent) than among girls (5.6 percent), and the prevalence of nonoffenders is smaller among boys (13.4 percent) than among girls (23.5 percent). The late onsetter group is larger among girls (10.3 percent) than among boys (6.5 percent), and the desister group is also larger among girls (26.8 percent) than among boys (20.4 percent). This is consistent with previous findings that more girls tend to be late-onset offenders compared with boys, that boys tend to be overrepresented among early-onset offenders (Elliott 1994), and that suspension (temporary or permanent) of criminal activity prior to the end of adolescence is more likely for female than male offenders (Elliott, Huizinga, and Menard 1989).

Eleven percent of European Americans, 18 percent of African Americans, 2 percent of Asian Americans, and 14 percent of others, primarily Native Americans, in the sample are in the chronic offender group. The prevalence of the nonoffender group is greatest among Asian-American youths. These data are summarized in table 2.

Offender versus Nonoffender among Poor Children

The fields of criminology, prevention, and adolescent development compare nonoffenders and offenders regardless of their pathways or patterns of offending. We ran analyses in which the four offending trajectory groups (late onsetter, desister, escalator, and chronic offender) are collapsed into a group called “offender,” regardless of their different offending patterns during adolescence (ages 13–18), in order to compare our results with results from long-established research. Logistic regressions were conducted to distinguish offenders from nonoffenders during adolescence using predictor variables representing individual, family, peer, school, and neighborhood influences in childhood, derived from constructs of the social development model (Hawkins and Weis 1985; Catalano and Hawkins 1996).

We conducted bivariate analyses in order to identify the predictive power of empirically derived and substantively meaningful risk and protective factors specified in the SDM. We control for gender and ethnicity because offending trajectories among poor children are significantly different by gender and ethnicity.

Table 3 presents results with gender and ethnicity controlled. As shown in table 3, a variety of predictors from ages 10–12 across all domains distinguish offenders from nonoffenders during adolescence. Youths who drink in the late elementary school years, who are aggressive, and who have attention problems are more likely to be offenders during adolescence. Youths who are less attached to their parents are more likely to be offenders. Youths who have antisocial friends are more likely to be offenders, but the prosocial peer variables are not significant predictors of offending. Youths who are less attached to school are more likely to be offenders. Youths from neighborhoods where drugs are easily available are more likely to be offenders during adolescence.

Divergence of Offending Trajectories among Poor Children

Trajectory group membership consists of five categories: nonoffender, late onsetter, desister, escalator, and chronic offender. Given the categorical nature of the outcome variable, multinomial logistic regression is used to examine the effects of a variety of variables at ages 10–12 on offending trajectory group membership between the ages of 13 and 18. We are interested in two substantively meaningful contrasts in the divergence of offending trajectories in figure 1: late onsetter versus non-offender and escalator versus desister. The late onsetter

and nonoffender groups started out at a similar level of offending seriousness at ages 13–15, and the escalator and desister groups had similar starting points, but those groups in each contrasting pair greatly diverged by age 18. We ran the multinomial logistic regression comparing each of the four offending trajectories to the omitted nonoffender group. The late on-setter versus nonoffender contrast results are available directly from the multinomial logistic regression results. The escalator versus desister contrast results are computed by taking the difference between escalator versus nonoffender and desister versus nonoffender results (see Long 1997).

Late onsetter versus nonoffender among poor children—The purpose of this contrast is to identify factors that influence the risk of late onset among the subset of youths who displayed no offenses at age 13. As shown in the first column of table 4, few factors measured at ages 10–12 distinguish late onsetters from nonoffenders. Youths who drink alcohol in the late elementary school years are more likely to be late onsetters. Drug availability is a marginally significant predictor.

Escalator versus desister among poor children—The purpose of this contrast is to identify factors that have an effect on the risk of continued escalation among the subset of youths who displayed minor levels of offenses at age 13. Equivalently, this contrast can be thought of as an effort to identify factors that predict desistance from minor offending by age 18.

The second column in table 4 presents results for the contrast of escalators versus desisters with gender and ethnicity controlled. Youths at ages 10–12 who experience poor family-management practices by parents, who come from families where there are conflicts among family members, who have antisocial friends, and who are from neighborhoods where other children are in trouble and where drugs are easily available are more likely to be escalators from ages 14 to 18.

Discussion

This study identifies five developmental trajectories of offending among children from low-income families: nonoffender, late onsetter, desister, escalator, and chronic offender. The trajectories match those found in the larger sample, but the size of the nonoffender group (24.0 percent) is greater in the full urban sample (Chung et al. 2002) when compared with the low-income subsample of this study (18.6 percent). The size of the chronic offender group (11.1 percent) is greater in this low-income subsample when compared with the group in the full sample (7.0 percent). Logistic regressions were conducted to distinguish offenders from nonoffenders among children from low-income families. Like the findings on the full sample, predictors at ages 10–12 distinguishing offenders from nonoffenders among children from low-income families are found in every domain measured. Thus, the number and types of offending trajectories and patterns of predictors that distinguish offenders from nonoffenders among these children from low-income families are consistent with our previous research findings on the full sample.

Multinomial logistic regression analyses identify factors at ages 10–12 that are predictive of divergences among groups with similar initial levels of offending seriousness at age 13. This analysis focuses on the two contrasts: late onsetter versus nonoffender and escalator versus desister.

Among initial nonoffenders at age 13, youths who drank alcohol in elementary school are more likely to be late onsetters. No other factors studied at ages 10–12 distinguish late onsetters from nonoffenders in these children from low-income families. It is likely that later developmental

influences are important in predicting later offending among those who do not offend before age 15.

At age 13, the desisters identified here are similar to escalators in seriousness of offending, but by age 18 they desist from offending. Like the escalators, these youths began offending by age 13. Should these offenders be viewed as early starters? If so, they do not appear to be life-course-persistent offenders. In fact, after onset, their offending trajectories through later adolescence are consistent with the pattern of adolescence-limited offending described by Moffitt (1993) and Gerald Patterson, Deborah Capaldi, and Lew Bank (1991). Individual attributes measured at ages 10–12, such as early alcohol consumption, do not distinguish escalators from desisters. Among youths who were already delinquent at age 13, desisters are distinguished from escalators by environmental factors at ages 10–12, such as living in families with better family management and less family conflict, having fewer antisocial peers, and not living in neighborhoods where other children are in trouble and where drugs are readily available. In other words, less exposure to family, peer, and neighborhood factors conducive to offending in late childhood appears to contribute to de-escalation and desistance from offending during adolescence among these children from low-income families even though they began offending early.

Chung et al. (2002) examine childhood predictors of offending trajectories from ages 13–21 from the full SSDP sample. A comparison of results from that study with those reported here reveals some common findings. For example, individual factors predict late onset of offending in the Chung et al. (2002) study. A similar set of peer and neighborhood factors differentiates desisters from escalators among early delinquents at age 13.

However, in contrast to the prior results, family factors significantly predict desistance from offending in children from low-income families. Poverty has an effect on offending, but its impact is mediated by family processes (Conger et al. 1994; Conger, Conger, and Elder 1997). Low-income parents are subject to more economic stress than affluent parents (Bruce, Takeuchi, and Leaf 1991; Ensminger 1995). This economic stress, in turn, diminishes good parenting and leads to increased conflicts among family members (Dodge, Pettit, and Bates 1994). Poverty tends to be associated with less adequate discipline and monitoring of children, and hence the proximal process may lie in the parenting difficulties rather than poverty, with the latter having an impact only at a more distal level through its role in making good parenting more difficult (McLoyd 1990; McLoyd and Wilson 1991; McLeod and Shanahan 1993; McLoyd 1998). Although the present finding that family factors predict desistance versus escalation in offending only among children from low-income families is consistent with these ideas, future research should examine these and other family processes of low-income families.

Prevention Implications

A variety of factors in individual, family, peer, school, and neighborhood domains distinguish adolescent offending trajectories among children from low-income families. These findings suggest that preventive interventions for children from poverty should incorporate multiple-component strategies that span across several domains. Preventive interventions for poor children should address multiple influences to prevent or reduce offending (Petersen, Richmond, and Leffert 1993).

Poor children are often assumed to be homogenous because they share many risk factors that result in the development of offending (Dryfoos 1990; Coie et al. 1993). However, this study identifies distinct groups of offenders among poor children. The “one size fits all” approach for every poor child may not work. We should tailor intervention strategies to prevent offending according to the long-term behavioral patterns of target groups. These data suggest that

preventive interventions that prevent or delay alcohol use during the elementary grades may inhibit late-onset offending among initial nonoffenders at age 13. In contrast, preventive interventions that improve family-management practices and reduce antisocial peer influences are likely to inhibit escalation of offending among those children from low-income families who initiate offenses before age 13. Interventions for low-income parents, such as home visits and parenting classes, can reduce parental stress and consequently enhance parenting capacity (Seitz and Provence 1990). If low-income parents can improve their ability to set clear rules, monitor children's behavior and their peers, and use effective discipline to correct early offending behavior through those parent-focused interventions, children from low-income families who have already committed low levels of offenses may desist from offending during adolescence. In addition, both initial nonoffenders and early delinquents at age 13 from low-income families may benefit from universal preventive interventions that protect them from the effects of harmful neighborhood environments.

References

- Achenbach, Thomas M.; Edelbrock, Craig. *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: University of Vermont Press; 1983.
- Akers, Ronald L. *Deviant Behavior: A Social Learning Approach*. 3. Belmont, Calif.: Wadsworth; 1985.
- Ayers, Charles D.; Williams, James Herbert; Hawkins, J David; Peterson, Peggy L.; Catalano, Richard F.; Abbott, Robert D. Assessing Correlates of Onset, Escalation, Deescalation, and Desistance of Delinquent Behavior. *Journal of Quantitative Criminology* 1999;15 (3):277–306.
- Bandura, Albert. *Social Learning Theory*. Englewood Cliffs, N.J.: Prentice-Hall; 1977.
- Battin, Sara R.; Hill, Karl G.; Abbott, Robert D.; Catalano, Richard F.; Hawkins, J David. The Contribution of Gang Membership to Delinquency beyond Delinquent Friends. *Criminology* 1998;36 (1):93–115.
- Brooks-Gunn, Jeanne; Duncan, Greg J.; Aber, J Lawrence. *Neighborhood Poverty: Context and Consequences for Children*. New York: Russell Sage; 1997.
- Bruce, Martha L.; Takeuchi, David T.; Leaf, Philip J. Poverty and Psychiatric Status: Longitudinal Evidence from the New Haven Epidemiologic Catchment Area Study. *Archives of General Psychiatry* 1991;48 (5):470–74. [PubMed: 2021300]
- Burgess, Robert L.; Akers, Ronald L. A Differential Association-Reinforcement Theory of Criminal Behavior. *Social Problems* 1966;14 (2):128–47.
- Catalano, Richard F.; Hawkins, J David. The Social Development Model: A Theory of Antisocial Behavior. In: Hawkins, J David, editor. *Delinquency and Crime: Current Theories*. New York: Cambridge University Press; 1996. p. 149–97.
- Chase-Lansdale, P Lindsay; Brooks-Gunn, Jeanne, editors. *Escape from Poverty: What Makes a Difference for Children?*. Cambridge: Cambridge University Press; 1995.
- Chung, Ick-Joong; Hill, Karl G.; Hawkins, J David; Gilchrist, Lewayne D.; Nagin, Daniel S. Childhood Predictors of Offense Trajectories. *Journal of Research in Crime and Delinquency* 2002;39 (1):60–90.
- Coie, John D.; Watt, Norman F.; West, Stephen G.; Hawkins, J David; Asarnow, Joan R.; Markman, Howard J.; Ramey, Sharon L.; Shure, Myrna B.; Long, Beverly. The Science of Prevention: A Conceptual Framework and Some Directions for a National Research Program. *American Psychologist* 1993;48 (10):1013–22. [PubMed: 8256874]
- Conger, Rand D.; Conger, Katherine J.; Elder, Glen H, Jr. Family Economic Hardship and Adolescent Adjustment: Mediating and Moderating Processes. *Duncan and Brooks-Gunn*; 1997. p. 288–310.
- Conger, Rand D.; Ge, Xiaojia; Elder, Glen H., Jr; Lorenz, Frederick O.; Simons, Ronald L. Economic Stress, Coercive Family Process, and Developmental Problems of Adolescents. *Child Development* 1994;65 (2):541–61. [PubMed: 8013239]
- Dodge, Kenneth A.; Pettit, Gregory S.; Bates, John E. Socialization Mediators of the Relation between Socioeconomic Status and Child Conduct Problems. *Child Development* 1994;65 (2):649–65. [PubMed: 8013245]

- Dryfoos, Joy G. *Adolescents at Risk: Prevalence and Prevention*. New York: Oxford University Press; 1990.
- Duncan, Greg J. *The Economic Environment of Childhood*. Huston, editor. 1991. p. 23-51.
- Duncan, Greg J.; Brooks-Gunn, Jeanne, editors. *Consequences of Growing up Poor*. New York: Russell Sage; 1997.
- Duncan, Greg J.; Brooks-Gunn, Jeanne; Klebanov, Pamela K. Economic Deprivation and Early Childhood Development. *Child Development* 1994;65 (2):296–318. [PubMed: 7516849]
- D'Unger, Amy V.; Land, Kenneth C.; McCall, Patricia L.; Nagin, Daniel S. How Many Latent Classes of Delinquent Criminal Careers? Results from Mixed Poisson Regression Analyses of the London, Philadelphia and Racine Cohorts Studies. *American Journal of Sociology* 1998;103 (6):1593–1630.
- Elliott, Delbert S. Serious Violent Offenders: Onset, Developmental Course, and Termination. The American Society of Criminology 1993 Presidential Address. *Criminology* 1994;32 (1):1–22.
- Elliott, Delbert S.; Huizinga, David; Menard, Scott. *Multiple Problem Youth: Delinquency, Substance Use, and Mental Health Problems*. New York: Springer-Verlag; 1989.
- Ensminger, Margaret E. Welfare and Psychological Distress: A Longitudinal Study of African American Urban Mothers. *Journal of Health and Social Behavior* 1995;36 (4):346–59. [PubMed: 8719053]
- Farrington, David P. Predictors, Causes, and Correlates of Male Youth Violence. In: Tonry, Michael; Moore, Mark H., editors. *Crime and Justice: A Review of Research*. Chicago: University of Chicago Press; 1998. p. 421-75.
- Farrington, David P.; Hawkins, J David. Predicting Participation, Early Onset and Later Persistence in Officially Recorded Offending. *Criminal Behaviour and Mental Health* 1991;1 (1):1–33.
- Fergusson, David M.; Horwood, L John; Nagin, Daniel S. Offending Trajectories in a New Zealand Birth Cohort. *Criminology* 2000;38 (2):525–51.
- Fraser, Mark W.; Richman, Jack M.; Galinsky, Maeda J. Risk, Protection, and Resilience: Toward a Conceptual Framework for Social Work Practice. *Social Work Research* 1999;23 (3):131–43.
- Gephart, Martha A. Neighborhoods and Communities as Contexts for Development. Brooks-Gunn, et al., editors. 1997. p. 1-43.
- Graham, John W.; Hofer, Scott M. Multiple Imputation in Multivariate Research. In: Little, Todd D.; Schnabel, Kai U.; Baumert, Juergen, editors. *Modeling Longitudinal and Multi-Group Data: Practical Issues, Applied Approaches, and Specific Examples*. Hillsdale, N.J.: Erlbaum; 2000. p. 201-18.p. 269-81.
- Graham, John W.; Hofer, Scott M.; Donaldson, Stewart I.; MacKinnon, David P.; Schafer, Joseph L. Analysis with Missing Data in Prevention Research. In: Bryant, Kendall J.; Windle, Michael T.; West, Stephen G., editors. *The Science of Prevention: Methodological Advances from Alcohol and Substance Abuse Research*. Washington, D.C.: American Psychological Association; 1997. p. 325-66.
- Graham, John W.; Hofer, Scott M.; Piccinin, Andrea M. Analysis with Missing Data in Drug Prevention Research. *Advances in Data Analysis for Prevention Intervention Research*. In: Collins, Linda M.; Seitz, Larry A., editors. NIDA Research Monograph no. 142. Washington, D.C.: U.S. Government Printing Office; 1994. p. 13-63.
- Hawkins, J David; Graham, John W.; Maguin, Eugene; Abbott, Robert D.; Hill, Karl G.; Catalano, Richard F. Exploring the Effects of Age of Alcohol Use Initiation and Psychosocial Risk Factors on Subsequent Alcohol Misuse. *Journal of Studies on Alcohol* 1997;58 (3):280–90. [PubMed: 9130220]
- Hawkins, J David; Herrenkohl, Todd; Farrington, David P.; Brewer, Devon; Catalano, Richard F.; Harachi, Tracy W. A Review of Predictors of Youth Violence. In: Loeber, Rolf; Farrington, David P., editors. *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*. Thousand Oaks, Calif.: Sage; 1998. p. 106-46.
- Hawkins, J David; Hill, Karl G.; Guo, Jie; Battin-Pearson, Sarah R. Substance Use Norms and Transitions in Substance Use: Implications for the Gateway Hypothesis. In: Denise, Kandel, editor. *Stages and Pathways of Drug Involvement: Examining the Gateway Hypothesis*. New York: Cambridge University Press; 2002. p. 42-64.
- Hawkins, J David; Weis, Joseph G. The Social Development Model: An Integrated Approach to Delinquency Prevention. *Journal of Primary Prevention* 1985;6 (2):73–97.

- Herrenkohl, Todd I.; Hawkins, J David; Chung, Ick-Joong; Hill, Karl G.; Battin-Pearson, Sara R. School and Community Risk Factors and Interventions. In: Loeber, Rolf; Farrington, David P., editors. *Child Delinquents: Development, Intervention, and Service Needs*. Thousand Oaks, Calif.: Sage; 2000. p. 211-46.
- Hill, Karl G.; White, Helen R.; Chung, Ick-Joong; Hawkins, J David; Catalano, Richard F. Early Adult Outcomes of Adolescent Binge Drinking: Person- and Variable-Centered Analyses of Binge Drinking Trajectories. *Alcoholism: Clinical and Experimental Research* 2000;24 (6):892-901.
- Hirschi, Travis. *Causes of Delinquency*. Berkeley: University of California Press; 1969.
- Huston, Aletha C. Antecedents, Consequences, and Possible Solutions for Poverty among Children. 1991a. p. 282-315.
- Huston, Aletha C., editor. *Children in Poverty: Child Development and Public Policy*. Cambridge: Cambridge University Press; 1991b.
- Jones, Bobby; Nagin, Daniel; Roeder, Kathryn. A SAS Procedure Based on Mixture Models for Estimating Developmental Trajectories. *Sociological Methods and Research* 2001;29 (3):374-93.
- Kass, Robert E.; Raftery, Adrian E. Bayes Factor. *Journal of the American Statistical Association* 1995;90 (430):773-95.
- Kirby, Laura D.; Fraser, Mark W. Risk and Resilience in Childhood. In: Fraser, Mark W., editor. *Risk and Resilience in Childhood: An Ecological Perspective*. Washington D.C.: National Association of Social Workers; 1997. p. 10-33.
- Lipsey, Mark W.; Derzon, James H. Predictors of Violent or Serious Delinquency in Adolescence and Early Adulthood: A Synthesis of Longitudinal Research. In: Loeber, Rolf; Farrington, David P., editors. *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*. Thousand Oaks, Calif.: Sage; 1998. p. 86-105.
- Little, Roderick JA.; Rubin, Donald B. *Statistical Analysis with Missing Data*. New York: Wiley; 1987.
- Loeber, Rolf. Development and Risk Factors of Juvenile Antisocial Behavior and Delinquency. *Clinical Psychology Review* 1990;10 (1):1-41.
- Loeber, Rolf; Farrington, David P.; Stouthamer-Loeber, Magda; Van Kammen, Wilmot B. *Antisocial Behavior and Mental Health Problems: Explanatory Factors in Childhood and Adolescence*. Mahwah, N.J.: Erlbaum; 1998.
- Loeber, Rolf; Hay, Dale. Key Issues in the Development of Aggression and Violence from Childhood to Early Adulthood. *Annual Review of Psychology* 1997;48:371-410.
- Long, J Scott. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, Calif.: Sage; 1997.
- Mayer, Susan E.; Jencks, Christopher. Growing Up in Poor Neighborhoods: How Much Does It Matter? *Science* 1989;243 (4897):1441-45.
- McLeod, Jane D.; Shanahan, Michael J. Poverty, Parenting, and Children's Mental Health. *American Sociological Review* 1993;58 (3):351-66.
- McLoyd, Vonnice C. The Impact of Economic Hardship on Black Families and Children: Psychological Distress, Parenting, and Socioemotional Development. *Child Development* 1990;61 (2):311-46. [PubMed: 2188806]
- McLoyd, Vonnice C. Socioeconomic Disadvantage and Child Development. *American Psychologist* 1998;53 (2):185-204. [PubMed: 9491747]
- McLoyd, Vonnice C.; Wilson, Leon. The Strain of Living Poor: Parenting, Social Support, and Child Mental Health. Huston, editor. 1991. p. 105-35.
- Moffitt, Terrie E. Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy. *Psychological Review* 1993;100 (4):674-701. [PubMed: 8255953]
- Muthen, Bengt; Muthen, Linda K. Integrating Person-Centered and Variable-Centered Analyses: Growth Mixture Modeling with Latent Trajectory Classes. *Alcoholism: Clinical and Experimental Research* 2000;24 (6):882-91.
- Nagin, Daniel S. Analyzing Developmental Trajectories: A Semiparametric, Group-Based Approach. *Psychological Methods* 1999;4 (2):139-57.
- Nagin, Daniel S.; Land, Kenneth C. Age, Criminal Careers, and Population Heterogeneity: Specification and Estimation of a Nonparametric, Mixed Poisson Model. *Criminology* 1993;31 (3):327-62.

- Nagin, Daniel; Tremblay, Richard E. Trajectories of Boys' Physical Aggression, Opposition, and Hyperactivity on the Path to Physically Violent and Nonviolent Juvenile Delinquency. *Child Development* 1999;70 (5):1181–96. [PubMed: 10546339]
- Patterson, Gerald R. Some Characteristics of a Developmental Theory for Early-Onset Delinquency. In: Lenzenweger, Mark F.; Haugaard, Jeffrey J., editors. *Frontiers of Developmental Psychopathology*. New York: Oxford University Press; 1996. p. 81-124.
- Patterson, Gerald R.; Capaldi, Deborah M.; Bank, Lew. An Early Starter Model for Predicting Delinquency. In: Pepler, Debra J.; Rubin, Kenneth H., editors. *The Development and Treatment of Childhood Aggression*. Hillsdale, N.J.: Erlbaum; 1991. p. 139-68.
- Patterson, Gerald R.; Yoerger, Karen. Developmental Models for Delinquent Behavior. In: Sheilagh, Hodgins, editor. *Mental Disorder and Crime*. Newbury Park, Calif.: Sage; 1993. p. 140-72.
- Patterson, Gerald R.; Yoerger, Karen. A Developmental Model for Late-Onset Delinquency. In: Osgood, D Wayne, editor. *Motivation and Delinquency: Nebraska Symposium on Motivation*. Lincoln: University of Nebraska Press; 1997. p. 119-77.
- Petersen, Anne C.; Richmond, Julius B.; Leffert, Nancy. Social Changes among Youth: The United States Experience. *Journal of Adolescent Health* 1993;14 (8):632–37. [PubMed: 8130235]
- Raftery, Adrian E. Bayesian Model Selection in Social Research. *Sociological Methodology* 1995;25:111–63.
- Schafer, Joseph Louis. *Analysis of Incomplete Multivariate Data*. London: Chapman & Hall; 1997.
- Schorr, Lisbeth B.; Schorr, Daniel. *Within Our Reach: Breaking the Cycle of Disadvantage*. Garden City, N.Y.: Anchor; 1988.
- Seitz, Victoria; Provence, Sally. Caregiver-Focused Models of Early Intervention. In: Meisels, Samuel J.; Shonkoff, Jack P., editors. *Handbook of Early Childhood Intervention*. New York: Cambridge University Press; 1990. p. 400-427.
- Smith, Sheila; Zaslow, Martha. Rationale and Policy Context for Two-Generation Interventions. In: Sheila, Smith, editor. *Two-Generation Programs for Families in Poverty: A New Intervention Strategy*. Norwood, N.J.: Ablex; 1995. p. 1-36.
- Sutherland, Edwin Hardin; Cressey, Donald R. *Criminology*. 10. New York: Lippincott; 1978.
- Tolan, Patrick H.; Gorman-Smith, Deborah. Development of Serious and Violent Offending Careers. In: Loeber, Rolf; Farrington, David P., editors. *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*. Thousand Oaks, Calif.: Sage; 1998. p. 68-85.
- Velez, C Noemi; Johnson, Jim; Cohen, Patricia. A Longitudinal Analysis of Selected Risk Factors for Childhood Psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry* 1989;28 (6):861–64. [PubMed: 2808256]
- Werner, Emmy E. Stress and Protective Factors in Children's Lives. In: Arthur, Roy Nicol, editor. *Longitudinal Studies in Child Psychology and Psychiatry: Practical Lessons from Research Experience*. New York: Wiley; 1985. p. 335-55.
- Werner, Emmy E.; Smith, Ruth S. *Overcoming the Odds: High Risk Children from Birth to Adulthood*. Ithaca, N.Y.: Cornell University Press; 1992.
- Wolfgang, Marvin E.; Figlio, Robert M.; Tracy, Paul E.; Singer, Simon I. *The National Survey of Crime Severity*. Washington, D.C.: U.S. Government Printing Office; 1985.
- Wright, Bradley R Entner; Caspi, Avshalom; Moffitt, Terrie E.; Miech, Richard A.; Silva, Phil A. Reconsidering the Relationship between SES and Delinquency: Causation but Not Correlation. *Criminology* 1999;37 (1):175–94.
- Zill, Nicholas; Moore, Kristin A.; Wolpow Smith, Ellen; Stief, Thomas; Coiro, Mary Jo. The Life Circumstances and Development of Children in Welfare Families: A Profile Based on National Survey Data. Chase-Lansdale; Brooks-Gunn, editors. 1995. p. 38-59.

Appendix

Item List for Measures of Predictors

Individual

Refusal Skills (Youth Interview)

- If you were at a party and one of your friends offered you a beer, what would you do?
- If one of your friends asked you to skip school, what would you do?

Alcohol Drinking (Youth Interview)

- Have you ever drunk beer, wine, whiskey, gin, or other liquor?
- How many times in the past month have you drunk beer, wine, whiskey, gin, or other liquor?

Aggressive (Teacher Interview)

- Thomas Achenbach and Craig Edelbrock's (1983) subscale consisting of 24 teacher-rated aggressive behaviors (e.g., items such as "gets in many fights" and "physically attacks people").

Anxious/Depressed (Teacher Interview)

- Achenbach and Edelbrock's (1983) subscale consisting of 18 teacher-rated anxious and depressed symptoms (e.g., items such as "feels worthless," "feels unloved," and "fearful").

Attention Problems (Teacher Interview)

- Achenbach and Edelbrock's (1983) subscale consisting of 20 teacher-rated inattentive behaviors (e.g., items such as "can't concentrate" and "easily distracted").

Family

Family Management (Youth Interview)

- When you are away from home, do your parents know where you are, and who you are with?
- The rules in my family are clear.
- When you have misbehaved, do your parents discuss what you did?
- My parents praise me for my school achievements.
- My parents notice when I am doing a good job and let me know about it.
- My parents put me down. (reversed)

Attachments to Parents (Youth Interview)

- Would you like to be the kind of person your mother is?
- Do you share your thoughts and feelings with your mother?
- Would you like to be the kind of person your father is?
- Do you share your thoughts and feelings with your father?

Family Conflict (Youth Interview, Parent Interview)

- Our family members get along well with each other. (youth)

- How often are people in your family critical of each other? (parent)
- How often do you and your family quarrel? (parent)
- How often do you and your child yell at each other? (parent)
- How often do people in your family get upset with each other? (parent)

Parents' Proviolent Attitudes (Youth Interview)

- How do you think your parents feel about you hitting or threatening to hit someone?

Peer

Antisocial Peer Opportunities (Youth Interview)

- Does your best friend do things that get them in trouble with the teacher?
- Has your best friend tried beer, wine, or liquor when their parents didn't know about it?
- Does your second-best friend do things that get them in trouble with the teacher?
- Has your second-best friend tried beer, wine, or liquor when their parents didn't know about it?
- Does your third-best friend do things that get them in trouble with the teacher?
- Has your third-best friend tried beer, wine, or liquor when their parents didn't know about it?

Antisocial Peer Involvement (Youth Interview)

- This scale is weighted by the extent of friends' antisocial behavior.
- How often do you see your best friend?
- How often do you see your second-best friend?
- How often do you see your third-best friend?

Antisocial Peer Bonding (Youth Interview)

- This scale is weighted by the extent of friends' antisocial behavior.
- Do you share your thoughts and feelings with your best friend?
- Do you share your thoughts and feelings with your second-best friend?
- Do you share your thoughts and feelings with your third-best friend?
- Do you want to be the kind of person that your best friend is?
- Do you want to be the kind of person that your second-best friend is?
- Do you want to be the kind of person that your third best-friend is?

Prosocial Peer Opportunities (Youth Interview)

- Does your best friend try to do well in school?
- Does your second-best friend try to do well in school?
- Does your third-best friend try to do well in school?

Prosocial Peer Involvement (Youth Interview)

- This scale is weighted by the extent of friends' prosocial behavior.

- How often do you see your best friend?
- How often do you see your second-best friend?
- How often do you see your third-best friend?

Prosocial Peer Bonding (Youth Interview)

- This scale is weighted by the extent of friends' prosocial behavior.
- Do you share your thoughts and feelings with your best friend?
- Do you share your thoughts and feelings with your second-best friend?
- Do you share your thoughts and feelings with your third-best friend?
- Do you want to be the kind of person that your best friend is?
- Do you want to be the kind of person that your second-best friend is?
- Do you want to be the kind of person that your third-best friend is?

School

Low Academic Achievement (School Records, Youth Interview)

- Scores on California Achievement Test. (school records, reversed)
- How are your grades compared to the grades of most kids in your class? (youth, reversed)
- How well do you read compared to the other kids of your age? (youth, reversed)

School Commitment (Youth Interview)

- I do extra work on my own in class.
- When I have an assignment to do, I keep on working on it until it is finished.

School Attachment (Youth Interview)

- I like school.
- I like my teacher this year.
- I like my class this year.
- Most mornings I look forward to going to school.

Neighborhood

Neighborhood Children in Trouble (Youth Interview)

- Lots of kids in my neighborhood get in trouble.

Neighborhood Attachment (Youth Interview)

- I like my neighborhood.
- I feel safe in my neighborhood.
- I know many people in my neighborhood.

Availability of Drugs (Youth Interview)

- Do you know anyone who has tried marijuana?
- Have you ever had a chance to try marijuana?

- If you had the money, and wanted to get marijuana, do you think you could get some?

Fig 1.
Adolescent offending trajectories among poor children

Table 1
Model Selection Results of Semiparametric Group-Based Modeling

Model	BIC	Offending Trajectory Group Prevalence					
		1st (%)	2d (%)	3d (%)	4th (%)	5th (%)	6th (%)
1	-5,373.82	100.0	...	...	...	...	...
2	-4,962.11	55.6	44.4	...	...	...	...
3	-4,907.43	49.3	35.5	15.2	...	...	...
4	-4,880.37	48.4	22.5	15.2	13.9	...	...
5a	-4,852.00	43.8	18.7	16.1	11.8	9.7	...
5b	-4,845.32	38.2	23.7	18.6	11.1	8.5	...
6	-4,869.66	34.5	16.9	16.1	12.2	10.8	9.5

Note.—BIC = Bayesian Information Criterion. Bolded row indicates model selected.

Table 2
Demographic Characteristics of Offending Trajectory Groups Among Poor Children

	Offending Trajectory Group				
	Nonoffender (<i>n</i> = 77) (%)	Late Onsetter (<i>n</i> = 35) (%)	Desister (<i>n</i> = 98) (%)	Escalator (<i>n</i> = 158) (%)	Chronic (<i>n</i> = 46) (%)
Gender: ***					
Girls (<i>n</i> = 213)	23.5	10.3	26.8	33.8	5.6
Boys (<i>n</i> = 201)	13.4	6.5	20.4	42.8	16.9
Ethnicity: ***					
European Americans (<i>n</i> = 116)	12.9	2.6	31.9	41.4	11.2
African Americans (<i>n</i> = 142)	8.5	6.3	23.2	44.4	17.6
Asian Americans (<i>n</i> = 113)	38.1	15.9	18.6	25.7	1.8
Others ^a (<i>n</i> = 43)	16.3	11.6	16.3	41.9	14.0

^aOthers are primarily Native Americans.

p < .001.

Table 3

Offender versus Nonoffender at Ages 13–18 among Poor Children: Coefficients of Predictor Variables Measured at Ages 10–12 for Bivariate Binary Logit Models

Controlling for Gender and Ethnicity, Ages 10–12	Offender vs. Nonoffender
Individual:	
Refusal skills	-.414 ⁺
Alcohol drinking	1.305 ^{***}
Temperament:	
Aggressive	1.848 [*]
Anxious-depressed	1.521
Attention problems	1.479 [*]
Family:	
Family management	-.631 ⁺
Attachment to parents	-.445 [*]
Family conflict	.171
Parents' proviolent attitudes	.972
Peer:	
Antisocial peer opportunities	1.306 ^{**}
Antisocial peer involvement	1.160 ^{**}
Antisocial peer bonding	1.091 ^{**}
Prosocial peer opportunities	-.288
Prosocial peer involvement	-.290
Prosocial peer bonding	-.176
School:	
Low academic achievement	.332 ⁺
School commitment	-.456 ⁺
School attachment	-1.091 ^{**}
Neighborhood:	
Neighborhood children in trouble	.286 ⁺
Neighborhood attachment	-.220
Availability of drugs	1.220 ^{***}

Note.—Coefficients are log odds ratios.

⁺ $p < .10$ (two-tailed tests).

^{*} $p < .05$ (two-tailed tests).

^{**} $p < .01$ (two-tailed tests).

^{***} $p < .001$ (two-tailed tests).

Table 4

Distinguishing Late Onsetter versus Nonoffender and Escalator versus Desister among Poor Children: Coefficients of Predictor Variables Measured at Ages 10–12 for Bivariate Multinomial Logit Models for Divergent Trajectory Groups at Ages 13–18

Controlling for Gender and Ethnicity, Ages 10–12	Late Onsetter vs. Nonoffender	Escalator vs. Desister
Individual:		
Refusal skills	-.371	-.294
Alcohol drinking	1.111 ⁺	.251
Temperament:		
Aggressive	.149	.243
Anxious-depressed	1.756	.324
Attention problems	.796	.553
Family:		
Family management	.121	-.678 [*]
Attachment to parents	.080	-.228
Family conflict	-.242	.476 [*]
Parents' proviolent attitudes	.907	.600
Peer:		
Antisocial peer opportunities	.373	1.085 ^{***}
Antisocial peer involvement	.801	.624 ^{**}
Antisocial peer bonding	.326	.803 ^{**}
Prosocial peer opportunities	.221	-.191
Prosocial peer involvement	.345	-.146
Prosocial peer bonding	.448	-.110
School:		
Low academic achievement	.024	.159
School commitment	.339	-.019
School attachment	-.334	-.124
Neighborhood:		
Neighborhood children in trouble	.228	.305 [*]
Neighborhood attachment	-.005	-.212
Availability of drugs	.708 ⁺	.603 ^{***}

Note.—Coefficients are log-odds ratios.

⁺ $p < .10$ (two-tailed tests).

^{*} $p < .05$ (two-tailed tests).

^{**} $p < .01$ (two-tailed tests).

^{***} $p < .001$ (two-tailed tests).