Trajectories of Delinquency from Age 14 to 23 in the National Longitudinal Survey of Youth Sample

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Abstract

This study utilized data from the National Longitudinal Survey of Youth to investigate risk trajectories for delinquency and factors associated with different trajectories, particularly substance use. The sample (N = 8,984) was 49% female. A group-based trajectory model was applied, which identified four distinct trajectories for both males and females: (1) a High group with delinquency rates consistently higher than other groups, with some decrease across the age range; (2) a Decreased group, beginning at high levels with substantial decrease to near zero; (3) a Moderate group experiencing some decline but remaining at moderate rates of delinquency through most of the age range; and (4) a consistently Low group, having low rates of delinquency declining to near zero by mid- to late-teens. The Low group was distinguished by several protective factors, including higher rates of maternal authoritative parenting style, possible lower acculturation (higher rates of non-English spoken at home), higher rates of religious activity, later substance use initiation, lower rates of early delinquent activity, less early experience with neighborhood or personal violence, and higher rates of perceiving penalty for wrongdoing. Conversely, the High group was characterized by several vulnerability factors—essentially the converse of the protective factors above.

Keywords

NLSY; Risk Trajectories; Delinquency; Substance Use

Introduction

The attempt to predict trajectories of delinquent behavior across the life course has been of increasing interest to researchers over the past two decades. For example, Moffitt and colleagues (Moffitt, 1993, 1997; Moffitt et al., 1996) distinguished groups of delinquents with different types of careers—specifically, life-course-persistent antisocial behavior, and adolescence-limited delinquency. The smaller group of consistent delinquents are at risk for continuation of their delinquent activities, while the adolescent-only delinquents are more likely to desist from further delinquent activities during late adolescence and early adulthood. Patterson and colleagues proposed a model that separated early-onset from late-onset offenders (e.g., Patterson, 1996; Patterson & Yoerger, 1993; Wiesner et al., 2003a).

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However, as Nagin (1999) has noted, many researchers used a priori classification schemes for the identification of delinquent trajectory groups and may have overlooked naturally occurring trajectory groups. Advances in statistical methods (e.g., Jones et al., 2001; Muthen & Muthen, 2000; Nagin, 1999) allow the modeling of heterogeneity in developmental trajectories and therefore can be used for studying differential covariates of multiple delinquency trajectories. More recent work has focused on the discrimination of developmental trajectories of delinquency using data from longitudinal studies.

Wiesner and Silbereisen (2003) utilized latent growth mixture modeling to examine individual, family, and peer covariates of trajectories of juvenile delinquency, using data from a community sample of 318 German adolescents (mean age of 11.45 years at the first wave). They found four trajectory groups (high-level offenders, medium-level offenders, low-level offenders, and rare offenders). Overall, time-averaged covariates distinguished better between varying trajectory groups than initial covariates. In addition, some covariates were consistently related to varying offender trajectories, whereas others showed trajectory-specific effects. The most consistent covariates were high peer tolerance of deviance and low parental empathy. Gender, low academic achievement, and low parental monitoring appeared to be trajectory-specific.

Landsheer and van Dijkum (2005), in a three-wave longitudinal study, followed 270 Dutch adolescents (ages 12 to 14) for six years. Eight trajectories were distinguished (Group 1 includes non-delinquents; Groups 2 – 7 consist of the less consistent trajectories, with either more persistent refraining from delinquency in early states of adolescence or desistance after an initial phase of delinquency; Group 8 included the consistent delinquents). Their findings indicate that there is a group of females who are persistently delinquent through adolescence. Moreover, the majority of the adolescents (55.8% of males and 56.1% of females) followed one of the less consistent trajectories. However, Lansheer and van Dijkum found it very difficult to find variables other than onset of delinquency that could explain the variance. For example, for the males, none of the variables concerning the support of father, mother, and friends during early, middle, or late adolescence added significantly to the prediction based on earlier delinquency.

In other work by Wiesner, six trajectory groups were found (Wiesner & Windle, 2004): rare offenders, moderate late peakers, high late peakers, decreasers, moderate-level chronics, and high-level chronics. Factors that discriminated between more normative groups and higher level offenders included poor academic achievement, unsupportive family environments, life events, and substance use. All of these studies found more distinct trajectories than anticipated by theories from Moffit (1993) and Patterson (Patterson & Yoerger, 1993).

Factors that have Consistently been Associated with Delinquency

Studies have consistently found high co-occurrence rates of delinquency and alcohol use during adolescence and also adulthood (e.g., D'Amico et al., 2008; Moss & Lynch, 2001; Windle, 1990). The association between delinquent or criminal behavior and illicit drug use in adolescence and young adulthood is also well established (e.g., Menard, 1998), with studies generally indicating that delinquency is initiated prior to illicit drug use. Wiesner and Windle (2006) found active offender pathways groups consistently showing poorer adjustment in the domains of young adult alcohol and illicit drug use, but not depression, relative to rare offenders—indicating some support for the proposal that differing developmental courses and experiences during middle adolescence are linked to differential outcomes in early adulthood. Horney et al. (1995) reported that individuals committed more crimes during periods in their lives when they had higher use of alcohol and drugs. Similarly, Welte et al. (2005) found that their subjects tended to be more involved with substances around the same time in their lives when they were committing more offenses.

D'Amico et al. (2008) provided a definitive study linking substance use and delinquency by estimating models examining the cross-lagged association between substance use and drug-related crime, interpersonal crime, and property crime. The temporal relationship between substance use and delinquency was similar across the three crime types, and they then estimated a fourth model examining the relationship between substance use and a latent delinquency variable: findings indicated that the relationship was reciprocal at each time point, suggesting the reciprocal effects of substance use and delinquency appear to be stable over time.

Purpose of the Current Study

The purpose of the current study was to examine longitudinal trajectories of delinquency among a very large, normal population sample of adolescents, the National Longitudinal Survey of Youth (U.S. Department of Labor, 2008). The goals of the study were to ascertain: (1) what distinctive trajectories of delinquency are found among males and females in a normal population sample; and (2) what factors distinguish these identified delinquency trajectories, in terms of background and characteristics from early in the trajectories, late adolescent characteristics, and patterns of alcohol use. Results may assist in the development of timed intervention for delinquency and related behaviors.

Methods

This study used data from the 1997 National Longitudinal Survey of Youth (NLSY97) sponsored by the U.S. Bureau of Labor Statistics. The NLSY97 ($N = 8,984$) was designed to gather longitudinal data on labor market activities and other significant life events of adolescents as they transitioned from school to work. The NLSY97 is comprised of a nationally representative sample of youth ($n = 6,748$) and an oversample of Black and Hispanic youth ($n = 2,236$) born between 1980 and 1984. The oversample of minority youth allows researchers to make valid comparisons among racial and ethnic groups (U.S. Department of Labor, 2008).

NLSY Procedures

Nine rounds of adolescent interviews were conducted annually from 1997 to 2005, and parent/guardian interviews were conducted in 1997. Sample attrition was fairly low, as 82% of the original sample of youth remained in the study at round 9. Parents/guardians who agreed to participate signed a consent form and adolescents signed an assent form; adolescents 18 and over signed a consent form. Participants were paid $10 to $20 for each interview. The interviews took approximately one hour to complete. Face to face interviews were conducted using computer-assisted personal interviewing (CAPI) system. Questions on sensitive topics such as criminal activity and drug use were administered through the use of audio computer-assisted self-interview (ACASI) technology, allowing youth to self-administer these questions and enter responses directly into a computer without an interviewer knowing the responses. The NLSY97 public use datasets, description of the measures and procedures, and the instruments are available at the NLSY website (U.S. Department of Labor, 2008).

The present study examined baseline data, including race/ethnicity, language spoken at home, and youth experiences and perceptions from round one in 1997, and employment, education, mental health, and other important youth outcomes from rounds 8 and 9 in 2004 and 2005. Delinquent and criminal behaviors, alcohol use, arrests, and incarcerations were examined across all nine time points.

Measures

The following measures were examined in this study, and were youth-reported, with the exception of one parent-reported measure (i.e., primary language spoken at home).

Youth delinquency and criminal behavior—Several variables were used to identify the delinquency/crime trajectories for male and female youth. These variables were: whether the youth ran away from home at age 16 or younger (i.e., stayed away at least overnight without parental knowledge or permission); sold or helped to sell illicit drugs; engaged in theft (including shoplifting, armed robbery, auto theft), property damage, or other property crimes (e.g., fraud, selling stolen property); attacked someone with intention to cause serious harm, joined a street gang, or carried a hand gun (firearm other than a rifle or shotgun). Participation in any of these delinquent or criminal behaviors was coded as 1, and participation in none of these behaviors was coded as 0 at each round. Delinquent/criminal behaviors were examined over time in rounds 1 through 9 of the study (centered by study participant age 14 – 23). Early delinquent behaviors were also assessed; we examined whether several of these behaviors (i.e., ran away from home, joined a street gang, carried a handgun, sold drugs) occurred by the age of 16.

Youth arrest and incarceration—Youth were asked whether they had ever been arrested by the police or taken into custody for an illegal or delinquent offense (excluding minor traffic violations) at the baseline interview. Youth were also asked about the number of times they were arrested (ever at round 1, and since the last interview at each subsequent interview), and their age at first arrest. Youth were asked about the outcome of each arrest, including whether they were charged and convicted of each offense, and if so, whether they were sentenced to spend time in a corrections institution (e.g., jail, prison, a juvenile detention facility). Youth who were sentenced to a correctional facility were asked for the start and end dates of each sentence, and the number of months incarcerated at each round of interviews was calculated. Arrests and months incarcerated were examined over time in rounds 1 through 9 (centered by study participant age 14 – 23).

Substance use—Alcohol use was assessed at each of the nine interviews as the number of days in the past 30 days the youth reported drinking alcohol (e.g., "beer, wine, a mixed drink, or a shot of liquor, not including sips that you might have had from an older person's drink"). Responses ranged from 0 – 30 for both male and female youth. Among males, the mean number of days was 0.85 ($SD = 2.82$) at round 1, and 5.88 ($SD = 7.31$) at round 9. Among females, the mean number of days was 0.71 ($SD = 2.50$) at round 1, and 3.69 ($SD = 5.52$) at round 9. Alcohol use was centered by study participant age 14 – 23. In addition, the youth's age when s/he first used alcohol, marijuana, and other illicit substances (e.g., cocaine, heroin) was assessed.

Early-trajectory youth characteristics and experiences—Youth sociodemographic characteristics, experiences and perceptions were examined early in the youth trajectories in relation to membership in the identified delinquency/crime trajectory groups. These variables were examined at round 1 and included the youths' gender, race/ethnicity, age, frequency of participation in religious activities with family, and primary language spoken at home. Youth early experiences of violence, perceptions of their mothers' parenting style, and perceptions of the criminal justice system were also examined. Youth were asked, "In a typical week, how many days from 0 to 7 do you hear gunshots in your neighborhood?" Those who indicated they do not hear gunshots in a typical week were compared to those who reported hearing gunshots on one or more days. Several items used in this analysis were asked with reference to the youth's experience before s/he was 12 years old. These included items assessing whether the youth's home was ever broken into; whether the youth was ever

the victim of repeated bullying; and whether the youth ever saw someone get shot or was shot at with a gun. The NLSY97 restricted two survey items used in this analysis to youth age 14 and younger ($n = 5,364$; 59.7% of the total sample); these variables were the frequency in which the youth participated in religious activities, and the frequency in which the youth typically heard gunshots in their neighborhood.

Youth perceptions of their mothers' parenting style were examined at round 1. Two variables, the residential mother's "demandingness" (e.g., strictness) and "responsiveness" (e.g., warmth, support) were combined to assess parenting style (Child Trends, Inc., 1999). Maccoby and Martin (1983) proposed a four-style typologyauthoritative parents were high on both demandingness and responsiveness (reported as strict and very supportive); authoritarian parents were high on demandingness and low on support (strict and somewhat or not very supportive); permissive parents were low on demandingness and high on responsiveness; and uninvolved parents were low on both demandingness and responsiveness (Maccoby & Martin, 1983).

Youth perceptions about the criminal justice system were examined by assessing the youth's perceived odds (ranging from 0–100%) of being arrested if s/he stole a car; the respondent was then asked, supposing s/he had been arrested for stealing a car, to report his/her perceived odds of being released without charges.

Late-trajectory youth characteristics—Variables examined at later points in youth trajectories (round 9) included the youths' educational attainment, whether the youth repeated any grades in school, employment status, military service, the number of pregnancies reported, and whether the youth received government assistance in 2005 (e.g., AFDC, food stamps; government assistance items were restricted to youth living independently of parents/guardians). Mental health status in the past month was also examined late in the trajectory (round 8), using a five-item mental health scale from the Medical Outcomes Study Short Form 36 (MOS-SF36; Ware & Sherbourne, 1992). Cronbach's alpha in this sample was .78.

Data analyses

These analyses sought to investigate subjects' delinquent behaviors occurring from age 14 to age 23 for males and for females. The two-part analysis approach first identified distinctive trajectory patterns for occurrence of delinquent behaviors and then compared subjects' characteristics (e.g., demographics, alcohol/substance use, arrests, incarceration and mental health, and longitudinal patterns of alcohol use) among subgroups with distinctive trajectory patterns. To prepare data for trajectory analyses, data were temporally arranged (or centered) by subject age. Thus, for trajectory analysis, age became the time variable, with no further re-centering. For the time point for age 14, all data for 14-year olds (from any NLSY wave) were included. Each subject contributed data at a specific age/time point if he/she was in the NLSY at that age (regardless of NLSY wave). As an example, a subject who was 12 years old at NLSY wave 1 initiation could contribute data to the trajectories for ages 14 – 20 (corresponding to that subject's NLSY waves 3 – 9) and would not contribute trajectory data for ages 21 – 23. A subject who began round 1 of the NLSY at age 17 would contribute data for trajectory ages 17–23. The distribution of numbers of subjects primarily reflects the available subject ages, since not all ages were available at each NLSY wave.

With an assumption of logit distribution on occurrence of delinquent behaviors, the group-based trajectory model (Nagin, 1999; Jones et al., 2001) was applied to identify and estimate distinctive delinquency trajectories among subjects. Males and females were analyzed separately. Intercept, slope and quadratic parameters were included in the model. Results allow subjects to be partitioned into latent classes determined by differences in their

trajectory patterns. Trajectories were developed using SAS PROC TRAJ procedure (Jones et al., 2001). Goodness of model fit was evaluated by Bayesian Information Criterion (BIC), with a higher BIC indicating a better model. The optimal models for males and for females were selected on the basis of a reasonably high BIC value, coupled with substantive considerations of interpretability and implications of distinguishable trajectories.

The second part of the analyses examined differences among the identified trajectory groups. Comparisons were made on subjects' characteristics from their round 1 interviews and their status on selected outcome variables from the interviews at round 8 (mental health status) or round 9. Major outcome variables included substance use, education, employment patterns of arrest and incarceration, and mental health status. Differences among the groups were tested using chi-square for categorical variables and general linear models (SAS Proc GLM) for continuous variables. In addition, a random effects model (using SAS Proc Mixed) was used to examine differences among trajectory groups in their patterns of alcohol use over time. Separate models were estimated for males and females, with models including group, longitudinal pattern (intercept, slope, quadratic), and group-by-pattern interaction parameters. Contrasts compared pairs of groups. Significance was determined at $p < .05$.

Results

Delinquency Trajectories for Males and Females

Results showed that four trajectory groups could be distinguished for each gender (Figures 1 and 2). For both genders, one trajectory group (labeled "High") was consistently higher than other trajectory groups for that gender along the entire age continuum; this High group experienced gradual decreases in delinquency over time, with a slight acceleration of the decrease occurring in the late teens, but remaining at relatively high delinquency rates (compared to other groups) through age 23. While there were similar trajectories, delinquency rates for females were consistently lower than for males. The High group accounted for 12.1% of males and 10.0% of females.

A second distinctive trajectory group for both genders displayed sharply declining delinquency rates through mid-to-late teens (labeled "Decreased," accounting for 25.2% of males and 21.6% of females). For males, the delinquency rate leveled off at near zero by early 20's; for females, this leveling occurred slightly earlier, by about age 19.

A third trajectory group for each gender had "Moderate" delinquency rates at age 14 (substantially lower rates at age 14 than the high and decreasing groups, accounting for 13.5% of males and 16.6% of females). By age 23, delinquency rates for this Moderate group had declined somewhat, but remained higher than rates for the decreased group. The patterns differed somewhat for males and females, with delinquency rates for males in the moderate group increasing slightly from age 14 to age 17 and declining only slightly by age 23. Females displayed a slight but consistent decrease in delinquency rates from age 14 to 23.

The fourth trajectory group (labeled "Low") for both genders consistently displayed lower delinquency rates than the other trajectory groups for the same gender. The Low pattern accounted for 49.2% of males and 51.7% of females.

Overall, trajectories for females were at lower delinquency rate levels than for males, for each type of trajectory identified. In addition, decreasing rates occurred at an earlier age for females than for males.

Factors Associated with Trajectory Groups

Delinquency trajectory groups differed significantly on many variables descriptive of background or early trajectory characteristics, on later age characteristics, and on patterns of alcohol use (Tables 1, 2, and 3; Figures 3 and 4). The exact nature of those differences were sometimes gender-specific.

Background and Early Characteristics—Trajectory groups differed slightly in terms of their race/ethnic distributions (Table 1). The Low trajectory group had the highest percentages with a language other than English spoken at home. For males, age of first substance use followed a similar pattern across trajectory groups for alcohol, marijuana, and other illicit substances: youngest ages of initiation were displayed by the High trajectory group, followed by the Decreased group, then the Moderate group, with oldest average age of initiation by the Low trajectory group (Table 2). A similar pattern across trajectory groups was seen for females for alcohol (range of 13.5 for the Low group to 16.3 years for the High group) and marijuana (15.2 – 17.3 years); but for female users of other illicit drugs, the youngest age of first use was for the Decreased group (16.5 years), followed by the High group, then the Low group, with the oldest age of first use by the Moderate group (18.2 years).

Early delinquent behaviors and arrests followed a similar pattern for both males and females: highest rates for the High trajectory group, followed by the Decreased group, then the Moderate group, and lowest rates for the Low trajectory group (Table 2). Female trajectory groups followed a similar relative pattern for early gang membership (although rates were lower across the board than for males). This ranking of trajectory groups for specific early delinquency behaviors is reflected in the early age segments of trajectories shown in Figures 1 and 2.

For both males and females, the Low trajectory group had the lowest rates reporting that their mothers were uninvolved in terms of parenting style (7.9% and 8.3%, respectively); and the High groups reported the highest rates of uninvolved mothers (12.6% for males and 17.9% for females). The Low group also had the highest rates of authoritative (47.7% for males and 44.4% for females) and lowest rates of authoritarian mothers' parenting style (9.0% and 11.1% for males and females). The Decreased and Moderate groups again fell in-between the extremes.

For males the High and Decreased trajectory groups were least likely to perceive that they would be arrested if they stole a car (54.5% and 55.8%, respectively), compared to 59.9% for the Moderate and 60.9% for the Low group). Females displayed an opposite relative ranking of trajectory groups, with highest rates for the High (60.4%) and Decreased (61.2%) groups and lower rates for Moderate (55.4%) and Low trajectory groups (57.9%).

Late-Trajectory Characteristics—The Low trajectory group had the highest education levels for both males (13.1 years) and females (13.5 years) and the High trajectory group had the lowest levels (11.8 years and 12.4 years, respectively; see Table 1). Education differences between Low and High trajectory groups were similar for males and females, although levels of education were generally higher and percentages with a grade repeated lower for females than for males.

By a later point in the age trajectory, lifetime arrest rates, average number of arrests, and incarceration rates were ranked across the trajectory groups similar to the ranking of delinquency trajectory groups in the later age ranges in Figures 1 and 2 (Table 2): highest rates for the High groups (e.g., 74.0% ever arrested), then the Moderate group (53.1%), then Decreased (50.4%), with lowest rates for the Low group (21.6%). A similar pattern was seen

for females, albeit with lower overall rates. In terms of mental health at a later trajectory age, the High and Low groups again were the extremes (Table 3).

Patterns of Alcohol Use over Time—The average number of days of alcohol use (within the past 30 days) for each of the trajectory groups is shown in Figures 3 (males) and 4 (females). In general, alcohol use increased from age 14 to 23 (significant linear slope main effect), with a slight leveling starting at about age 21 for males and age 20 for females (significant quadratic main effect). But both intercept and the degree of change in alcohol use from age 13 to 23 differed across trajectory groups (significant group-by-pattern parameters). The Low delinquency trajectory group had the lowest alcohol use levels consistently across time for both males and females. The High delinquency trajectory group had the highest levels of alcohol use for both genders.

Although slopes for Decreased and Moderate groups did not differ significantly, an interesting pattern was observed. For both genders, the Decreased group had higher levels of alcohol use at the earlier ages than did the Moderate group, during the period when it also had higher rates of delinquency; alcohol use levels for these two trajectory groups then switch relative ranking paralleling the switch by the two groups in delinquency rates.

Discussion

The four trajectory groups identified were consistent for both genders. Although, as would be expected from previous literature, the general rates for each group were higher for males than for females. However, this study establishes that this male-female difference occurs within each trajectory, which is noteworthy, and goes beyond what the general literature has reported. Interestingly, the age at which trajectories varied was different for males and females, with females typically changing earlier (e.g., the Decreased group declines at age 20 for males, and approximately age 19 for females). Further research to determine if these differences maintain over time as the cohort ages into later adulthood would be of interest. Differences between males and females in rates of many risk behaviors have been declining (e.g., Hill et al., 1999; Johnston et al., 2009; Keyes et al., 2008; Snyder, 2001).

Critical information to inform interventions can also be gained from this study. The lowest risk trajectory group had: (1) higher levels of perceived authoritative maternal parenting; and (2) higher rates of perceived penalty for wrongdoing. We know that parental monitoring can serve as a strong protective factor for early and middle adolescents: numerous studies have linked higher levels of parental monitoring to lower levels of adolescent antisocial behavior and alcohol use, and better school functioning (e.g., Brown et al., 1993; Guo et al., 2001; Hayes et al., 2004; Murphy et al., 2009). Thus, parenting interventions for at-risk youth that focus on teaching parents developmentally appropriate parental monitoring skills. The very fact of parental monitoring could also serve to increase perceptions of accountability (i.e., will be held accountable for wrongdoing).

Acculturation and traditional values may also play a large role in risk trajectories, as the low trajectory group had the highest percent of non-English speaking families, as well as higher rates of weekly or more frequent religious activity. This is consistent with previous studies that have supported an empirical association between acculturation status and delinquency for Latino adolescents (e.g., Samaniego & Gonzales, 1999; Vega et al., 1995). In fact, this is potentially tied to the findings of the lowest risk trajectory group having higher levels of perceived authoritative maternal parenting discussed above. Fridrich and Flannery (1995) found that less acculturated adolescents recently immigrated Mexican American youth reported significantly less delinquent behavior than Caucasian or acculturated Mexican-

American youth, and that the recent immigrant adolescents reported more parental monitoring than did the acculturated Mexican-American youth.

The High trajectory group was distinguishable as having generally high levels of delinquent behaviors. For example, this group had the youngest average age of initiation for alcohol and marijuana, suggesting a greater need for early prevention efforts. This group also had higher rates of criminal involvement. Concommitant with this early delinquency was poorer education progress (higher percentage repeating a school grade and lower grade levels completed). Education progress may provide a context for early identification of potential later problems; and schools may provide a venue for early intervention efforts.

The patterns that emerged in these data may assist in development of interventions for youth. Results showed clearly associated variables connected to the differing trajectories that may help predict lifetime course, should no intervention intercede to change these trajectory patterns. For example, there is an obvious need to target interventions to specific age groups, since youth characteristics and needs differ dramatically between mid-teens and early 20's. One focus of early intervention/prevention would be to decrease delinquency during mid-teens. In addition, interventions need to target a range of behaviors—not just delinquency but also substance use, since patterns of alcohol use are associated with patterns of delinquency. This is also consistent with the fact that there is co-occurrence of health risk behaviors among adolescents, and real-world interventions need to address multiple risk behaviors.

One limitation should be noted regarding this study. While the sample is diverse, with good representation from typically under-represented minority groups, analysis did not include any further weighting to accomplish national representation. Therefore, results should be looked at as generalizable only to a similar population as that included in the current sample.

Acknowledgments

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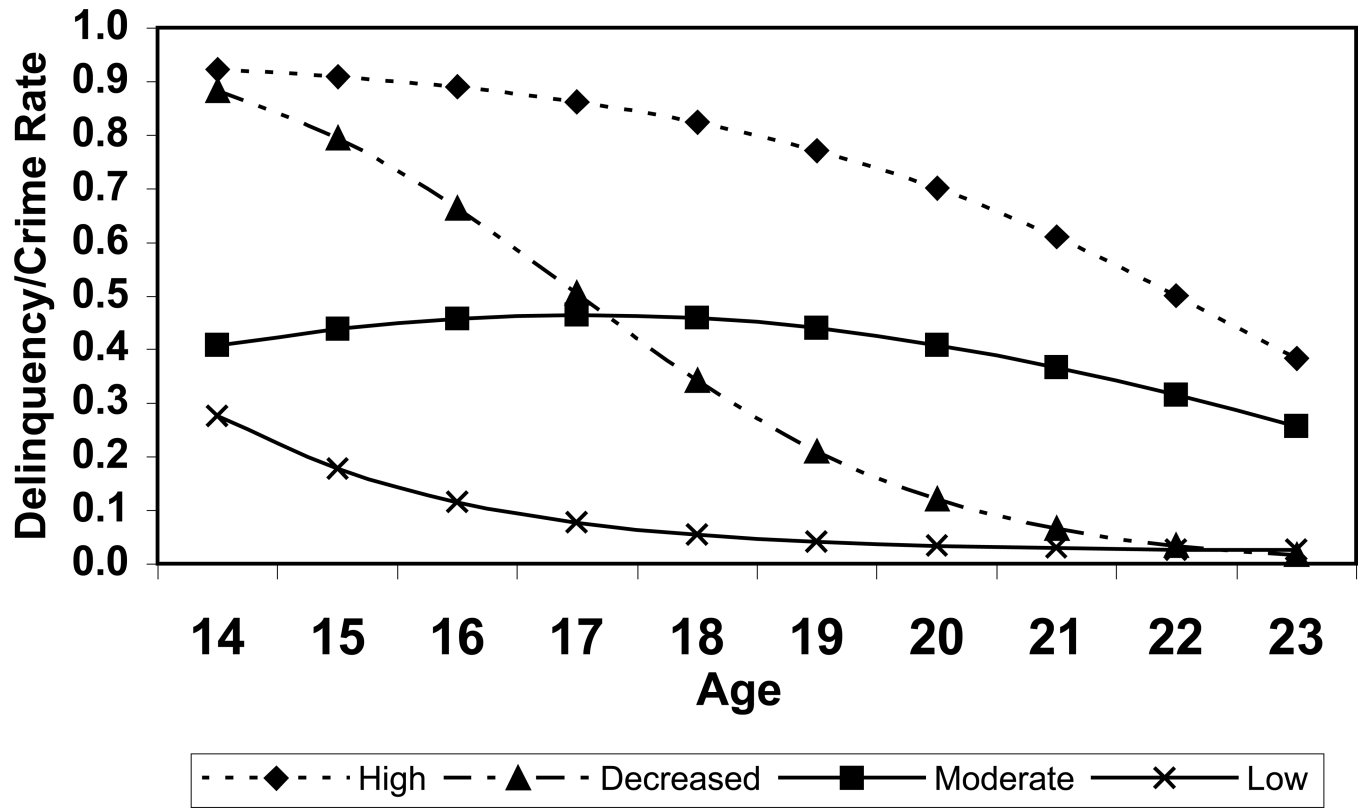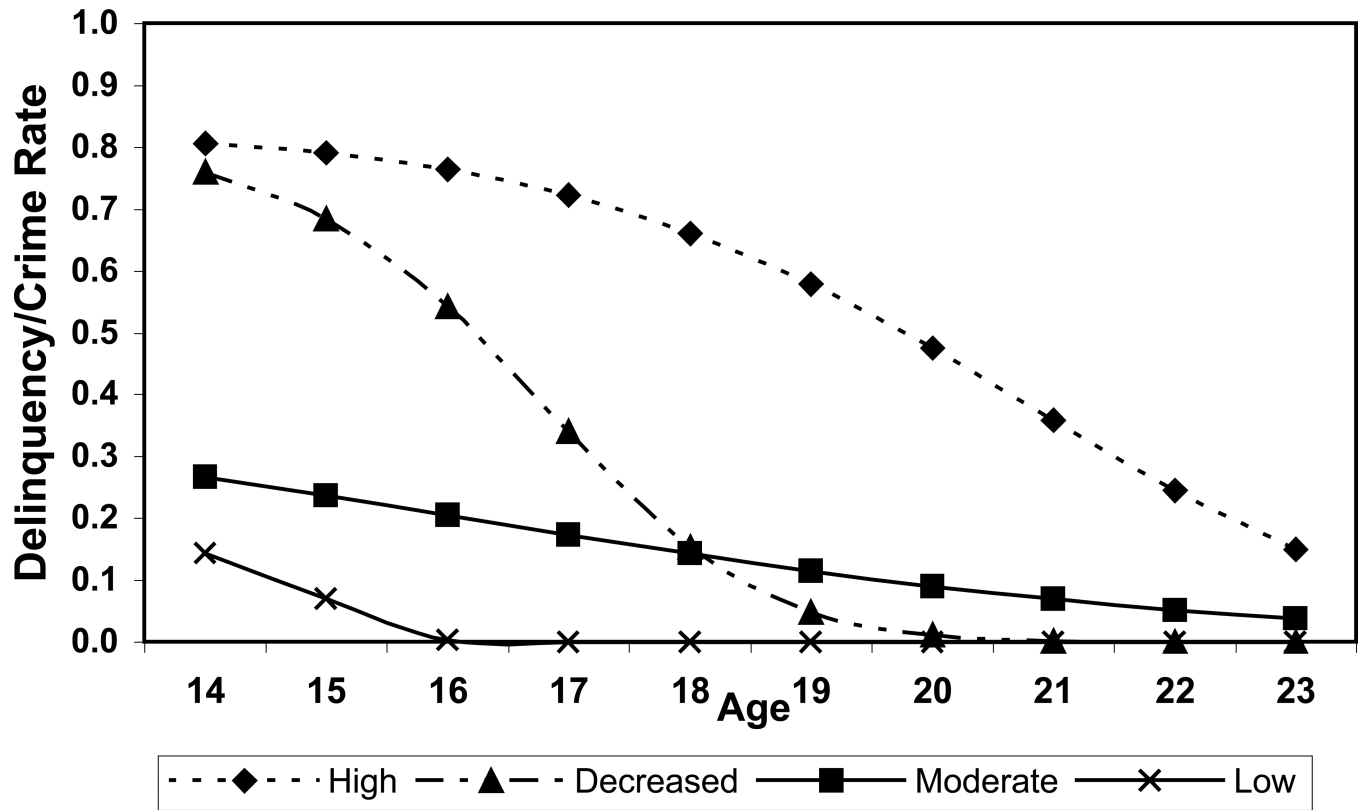**Figure 1.**
Delinquency trajectory groups – Males

Figure 2.
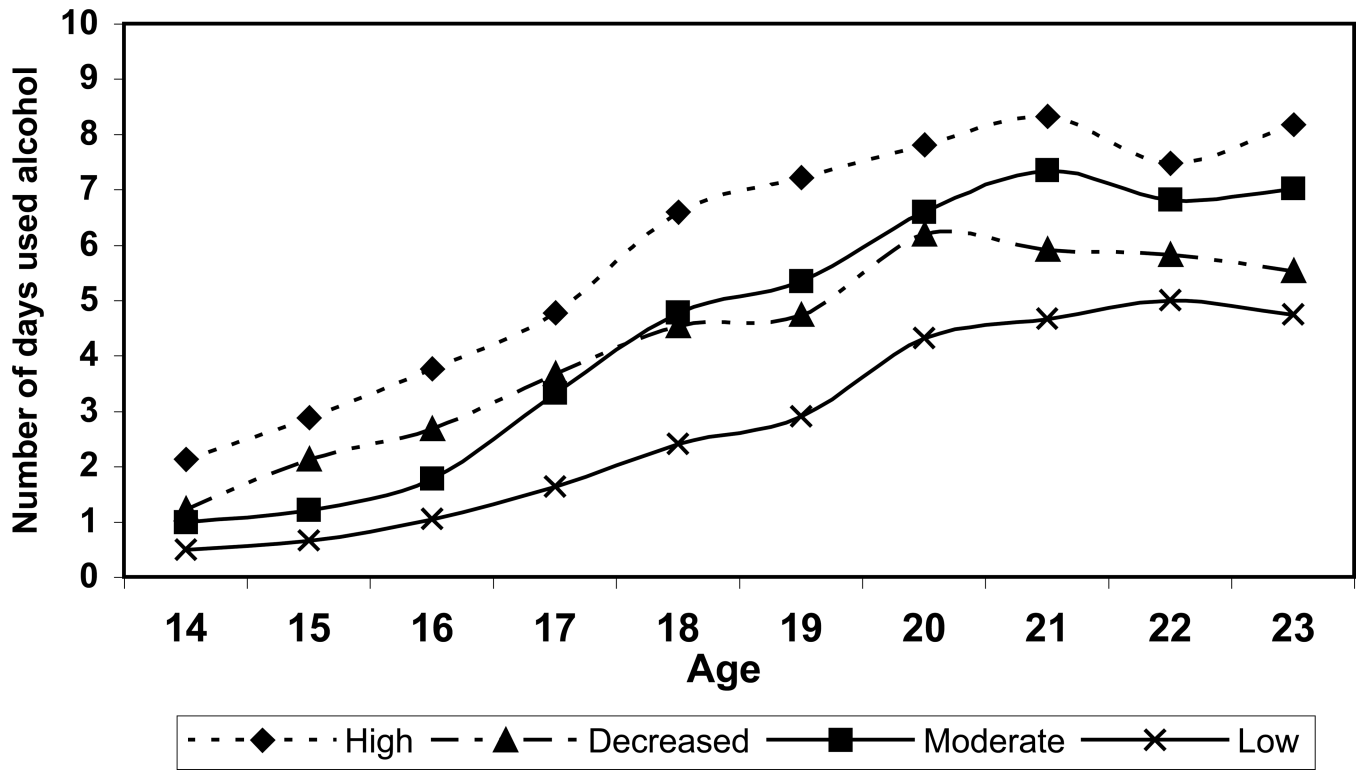Delinquency trajectory groups – Females

Figure 3.
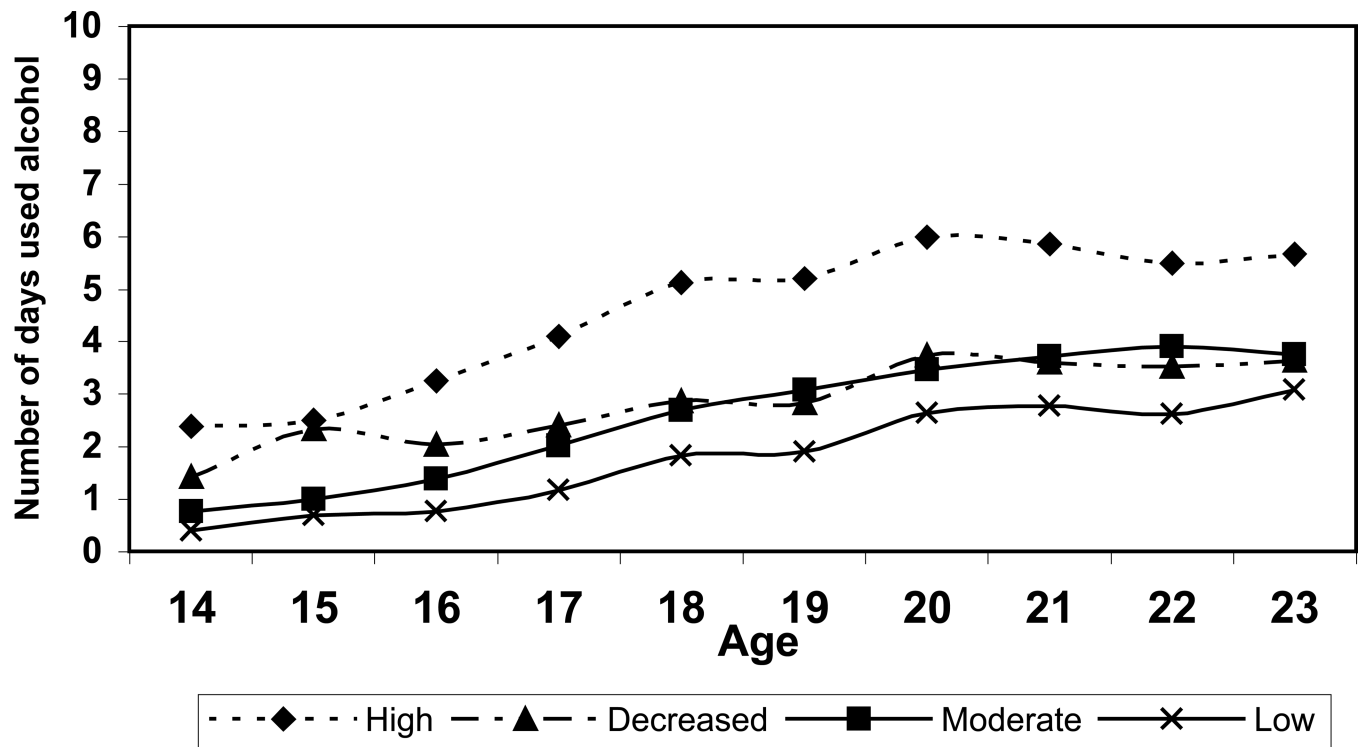Alcohol use in the past 30 days - Males

Figure 4.
Alcohol use in the past 30 days - Females

Table 1

Sociodemographic characteristics by delinquency trajectory groups for males and for females

		Males					Females			
	p	High (N = 557)	Decreased (N = 1158)	Moderate (N = 620)	Low (N = 2264)	*p*	High (N = 439)	Decreased (N = 947)	Moderate (N = 730)	Low (N = 2269)
Race (%)	**					*				
Black		25.4	24.0	28.7	25.4		24.0	25.7	31.6	26.0
Hispanic		22.1	19.5	20.4	22.2		19.9	20.1	18.5	22.7
White		50.0	54.2	47.7	48.1		53.6	49.8	46.7	47.9
Other		2.5	2.3	3.2	4.3		2.5	4.5	3.2	3.5
Years of education, 2005, *M (SD)*	**	11.82 (2.16)	12.45 (2.41)	12.28 (2.20)	13.05 (2.26)	**	12.42 (2.34)	12.71 (2.53)	13.05 (2.25)	13.48 (2.32)
Ever repeated a grade, 2005 (%)	**	34.8	26.3	26.6	20.0	**	24.0	18.8	14.0	13.5
Language other than English spoken at home (%)	**	16.1	17.4	18.8	22.1	*	16.2	17.6	17.3	20.9
Days per week engaged in religious activity, 1997 (%)	**					**				
0		43.0	39.5	36.4	30.3		49.5	46.3	32.5	28.1
1		33.6	32.3	31.5	34.9		23.4	24.2	31.6	33.5
2+		23.4	28.2	32.1	34.9		27.1	29.5	35.9	38.4
Joined the military (%)	**	10.4	8.1	12.6	5.8		2.7	1.9	2.9	1.9
Received government assistance in 2005 (%)	**	10.8	9.0	10.7	6.5	**	31.6	29.2	28.7	19.6
Employed in 2005 (%)		87.6	89.2	86.7	88.7		88.0	86.4	87.5	89.0
Number of pregnancies (%)	**					**				
0		48.7	64.2	59.3	76.6		36.4	35.7	43.4	54.4
1		24.9	19.0	18.8	14.6		17.5	21.8	19.9	18.8
2		14.2	10.2	12.8	6.1		16.6	18.2	16.5	12.8
3+		12.3	6.6	9.2	2.8		29.5	24.4	20.2	14.0

*
p < .05.

**
p < .01.

Table 2

Substance use, delinquency, arrest and incarceration by delinquency trajectory groups for males and for females

	p	Males				p	Females			
		High (N = 557)	Decreased (N = 1158)	Moderate (N = 620)	Low (N = 2264)		High (N = 439)	Decreased (N = 947)	Moderate (N = 730)	Low (N = 2269)
Age first used alcohol, M (SD)	**	13.55 (3.49)	14.19 (3.35)	14.98 (3.53)	15.86 (3.61)	**	13.5 (3.26)	14.30 (3.10)	15.20 (3.27)	16.27 (3.18)
Age first used marijuana, M (SD)	**	14.97 (2.95)	15.57 (2.81)	16.53 (3.02)	16.93 (3.40)	**	15.18 (2.67)	15.31 (2.87)	16.84 (2.61)	17.28 (2.80)
Age at first use of other illicit drugs, M (SD)	**	17.20 (3.80)	17.20 (3.28)	18.03 (3.54)	18.21 (3.83)	**	16.93 (3.39)	16.47 (3.42)	18.15 (2.96)	17.90 (3.03)
Ran away from home by age 16 (%)	**	35.9	25.3	17.9	9.2	**	45.6	34.6	21.9	9.9
In a gang by age 16 (%)	**	37.2	22.7	18.4	5.7	**	18.5	12.9	6.7	1.5
Carried a hand gun by age 16 (%)	**	34.3	23.8	15.0	7.5	**	8.4	6.7	1.8	0.9
Sold drugs by age 16 (%)	**	34.5	22.1	8.7	4.1	**	28.3	16.8	4.0	1.2
Arrested by age 16 (%)	**	32.1	23.8	14.2	7.9	**	19.8	16.7	5.5	3.1
Incarcerated by age 16 (%)	**	4.9	3.4	1.8	0.8	**	2.7	1.7	0.7	0.1
Any delinquent behaviors[a] or arrest by age 16 (%)	**	77.2	62.7	46.6	24.0	**	62.9	50.5	29.6	13.7
Ever arrested (%)	**	74.0	50.4	53.1	21.6	**	49.2	28.5	20.7	6.1
Number of arrests, M (SD)	**	3.82 (5.54)	1.69 (3.21)	1.95 (4.97)	0.46 (1.37)	**	1.72 (3.35)	0.70 (2.26)	0.59 (4.58)	0.08 (0.39)
Ever incarcerated (%)	**	17.8	9.2	11.5	2.1	**	8.7	2.6	2.6	0.3
Number of months incarcerated, M (SD)	**	1.55 (5.56)	0.48 (2.60)	0.59 (2.48)	0.11 (1.01)	**	0.33 (1.69)	0.10 (0.90)	0.08 (0.39)	0.00 (0.12)

*
$p < .05$.

**
$p < .01$.

[a] ran away, gang involvement, carrying a gun, selling drugs.

Table 3

Youth experiences of violence, perceptions, and mental health by delinquency trajectory groups for males and females

		Males					Females			
	p	High (*N* = 557)	Decreased (*N* = 1158)	Moderate (*N* = 620)	Low (*N* = 2264)	*p*	High (*N* = 439)	Decreased (*N* = 947)	Moderate (*N* = 730)	Low (*N* = 2269)
Heard gun shots in neighborhood in a typical week, 1997 (%)	**	28.4	26.4	26.4	21.1	**	26.6	21.2	20.0	17.0
Home was broken into prior to age 12, 1997 (%)	**	21.1	17.4	18.4	13.5	**	21.6	17.7	13.9	11.9
Was a victim of repeated bullying prior to age 12, 1997 (%)	**	31.7	25.8	23.2	16.9	**	32.2	23.0	15.7	12.0
Saw someone shot with gun prior to age 12, 1997 (%)	**	23.7	16.8	15.1	8.9	**	15.6	13.2	8.5	5.2
Youth perception of mother's parenting style, 1997 (%)	**					**				
Uninvolved		12.6	10.5	9.1	7.9		17.9	17.0	10.9	8.3
Permissive		33.6	34.5	36.9	35.4		28.3	34.9	33.7	36.2
Authoritarian		14.7	13.4	10.4	9.0		18.1	17.9	15.3	11.1
Authoritative		39.1	41.6	43.6	47.7		35.7	30.3	40.1	44.4
Youth's perception of likelihood (0–100%) of being arrested if s/he stole a car, 1997, *M (SD)*	**	54.52 (39.69)	55.76 (39.18)	59.86 (38.69)	60.94 (40.09)	*	60.37 (39.74)	61.18 (39.80)	55.43 (41.76)	57.90 (42.38)
Youth's perception of likelihood (0–100%) of being released without charge if s/he stole a car, 1997, *M (SD)*		30.78 (34.78)	30.31 (32.78)	32.27 (33.85)	30.08 (32.51)	*	37.70 (36.07)	32.77 (34.29)	36.92 (36.17)	35.03 (35.65)
Mental Health scale, 2004, *M (SD)*	**	15.31 (2.29)	15.84 (2.44)	15.62 (2.47)	16.11 (2.28)	**	14.21 (2.63)	15.13 (2.60)	14.89 (2.51)	15.48 (2.37)

*
p < .05.

**
p < .01.