# Antisocial Behavior Trajectories of Adolescents and Emerging Adults With Histories of Sexual Aggression

Scott T. Ronis
University of New Brunswick

Charles M. Borduin
University of Missouri

***Objective:*** The development of antisocial behavior among youths with histories of sexual aggression was examined. ***Method:*** Participants were 1,725 youths and their parents who were part of an ongoing, prospective longitudinal study that followed youths from early adolescence (11 to 17 years of age) through emerging adulthood (18 to 27 years of age). Individual youths completed a self-report delinquency measure in seven waves of the study. Of the participants, 131 individuals reported committing at least one sexually aggressive act across the seven waves, and 605 individuals reported committing at least one serious nonsexual antisocial act (e.g., physical assault, robbery) but no sexual aggression during the study. ***Results:*** A growth mixture modeling approach revealed three antisocial behavior trajectories (i.e., low, moderate, and chronic) and indicated that individuals with a history of sexual aggression (i.e., sexual perpetrators) generally did not have different antisocial behavior trajectories during adolescence and emerging adulthood than did individuals with histories of serious nonsexual antisocial behavior (i.e., nonsexual perpetrators). Moreover, similar proportions of sexual perpetrators and nonsexual perpetrators were found on each of the three trajectories. ***Conclusions:*** These findings suggest that sexual perpetrators are not a homogeneous population and that the development of problem sexual behavior is generally similar to the development of other serious antisocial behaviors. These findings also suggest that treatments that have demonstrated effectiveness with delinquent youth in general may be successful with sexually aggressive youth in particular.

*Keywords:* sexual perpetrators, sexual aggression, criminal trajectories, delinquency, antisocial behavior

Individuals arrested for sexual offenses often receive special attention in the criminal justice and mental health systems (see Dwyer & Letourneau, 2011; Hanson et al., 2002, for reviews). For example, based on United States federal all adults and at least some youths who are adjudicated for sexual crimes are required to

publicly register as sexual offenders following their incarceration (Adam Walsh Child Protection and Safety Act, 2006). Furthermore, many states have laws that restrict where individuals who commit sexual offenses are permitted to live and work after they are released from custody (Bonnar-Kidd, 2010). Policymakers often assume that individuals with one or more sexual offenses have more serious and frequent patterns of criminal behavior than do nonsexual offenders (Letourneau & Miner, 2005). They also assume that individuals who commit sexual crimes are similar to each other in terms of their development of antisocial behavior and risk for reoffending (Chaffin, 2008). However, there is limited research on the developmental course of antisocial behavior among individuals who have perpetrated at least one sexually aggressive act (hereafter referred to as *sexual perpetrators*) relative to individuals who have histories of nonsexual

aggression only (hereafter referred to as *nonsexual perpetrators*). With such limited research, it is difficult to determine whether sexual perpetrators actually represent a distinct subgroup of individuals engaging in serious antisocial behavior. The purpose of the present study is to compare the antisocial behavior trajectories of sexual perpetrators and nonsexual perpetrators during adolescence and emerging adulthood.

To understand the development and maintenance of problem sexual behavior among youths, it seems useful to consider the extant literature on serious antisocial behavior in general and on sexual aggression in particular. Developmentalists (e.g., Elder, 1998) and criminologists (e.g., Thornberry, 1997) have suggested that there are several different types of criminal offenders, each following a pattern of antisocial behavioral development (i.e., an antisocial behavior trajectory) that is associated with distinct risk factors. Indeed, a growing body of longitudinal research (e.g., Loeber & Hay, 1997; Moffitt, Caspi, Harrington, & Milne, 2002; Patterson & Yoerger, 2002) indicates that there are multiple antisocial behavior trajectories that can be differentiated by age of onset (e.g., early vs. late adolescence), type of behavior (e.g., covert vs. overt antisocial behavior), and rate of offending. To date, however, we know very little about the trajectories of young (i.e., adolescent and emerging adult) sexual perpetrators.

As discussed in major reviews (e.g., Becker, 1998; Chaffin, Letourneau, & Silovsky, 2002), there are three serious methodological problems in the majority of studies of young sexual perpetrators. First, most studies have defined sexually aggressive behavior solely in terms of official arrests. Although arrests represent one index of serious criminality (including sexual offenses), they underestimate the frequency and types of antisocial behavior perpetrated by youths (Elliott, 1995). Second, the majority of studies investigating the antisocial behavior of young sexual perpetrators have used cross-sectional designs. In the absence of longitudinal research, it is difficult to assess whether young sexual perpetrators have unique trajectories. Finally, most cross-sectional studies in this area, with the exception of some recent investigations (e.g., Ronis & Borduin, 2007; Wanklyn, Ward, Cormier, Day, & Newman, 2012), have

not directly examined whether sexual perpetrators exhibit distinct antisocial behavior trajectories relative to key comparison groups (e.g., youth who have committed serious nonsexual offenses). Without such comparisons, it has been difficult to determine whether sexual perpetrators have unique patterns of antisocial behavior.

Although the antisocial behavior trajectories of young sexual perpetrators have not been examined, some researchers have investigated the trajectories of youth who commit crimes in general (e.g., Elder, 1998; Thornberry, 1997). In addition, other researchers have examined the range of delinquent behaviors committed by adolescent sexual perpetrators (e.g., Seto & Lalumière, 2010; Wanklyn et al., 2012). Thus, in determining whether young sexual perpetrators have unique antisocial behavior trajectories relative to nonsexually perpetrating youths, it seems essential to consider the extant literature on (a) the antisocial behavior trajectories of young offenders in general and (b) the criminal histories of young sexual perpetrators.

## Antisocial Behavior Trajectories of Offenders in General

Some researchers (e.g., Loeber & Hay, 1997; Moffitt et al., 2002; Patterson & Yoerger, 2002) have concluded that there are three distinct subgroups of individuals who commit crimes, each following a prototypical antisocial behavior trajectory. The first subgroup of individuals is thought to become involved in serious delinquent behavior in middle childhood and continue to engage in serious antisocial behavior in adulthood. Labels for this trajectory include "aggressive versatile" (Loeber & Hay, 1997), "life course persistent" (Moffitt et al., 2002), and "early starter" (Patterson & Yoerger, 2002). The second subgroup is thought to include a much larger number of individuals who begin offending in adolescence but desist from antisocial behavior prior to adulthood. Labels for this trajectory include "nonaggressive" (Loeber & Hay, 1997), "adolescence limited" (Moffitt et al., 2002), and "late onset" (Patterson & Yoerger, 2002). A third subgroup is said to include individuals who do not engage in substantial antisocial behavior during adolescence or adulthood. Although these three subgroups make conceptual sense, they have been defined on the

basis of assumptions about antisocial behavior patterns rather than on statistical clustering of common variability.

Other investigators (e.g., Piquero, Farrington, Nagin, & Moffitt, 2010; Wiesner & Windle, 2004) have used fine-grained statistical procedures (e.g., semiparametric group-based modeling, Nagin, 2005; latent growth mixture modeling, Muthén & Muthén, 2000) to model the unobserved heterogeneity of individuals' antisocial behavior over time. In general, these investigators have found antisocial behavior trajectories across adolescence and emerging adulthood that are consistent with trajectories that have been defined conceptually. However, there is some support for dividing one or more of the trajectories into multiple subgroups (Wiesner & Windle, 2004). Nevertheless, because of the small number of studies using fine-grained statistical approaches, it is still not clear whether there are more than three trajectory classes.

## Criminal Histories of Young Sexual Perpetrators

Researchers have found that there is substantial heterogeneity in the criminal histories of adolescents and emerging adults who have committed sexual offenses (for a review, see Letourneau & Miner, 2005) and have demonstrated that 47% to 90% of these individuals have also committed nonsexual crimes (e.g., property crimes, violent nonsexual crimes). Thus, it appears that sexual aggression is part of a broader array of antisocial behavior for a substantial number of young sexual perpetrators. Indeed, many studies have shown that adolescent sexual perpetrators (e.g., McCann & Lussier, 2008; Vandiver, 2006) and adult sexual perpetrators (e.g., Hanson & Bussiere, 1998; Langan, Schmitt, & Durose, 2003) are more likely to be rearrested for nonsexual crimes than for sexual crimes. Although there is substantial variation across studies primarily due to differences in how sexual aggression is defined and measured, as well as in the length of follow-up periods, rates of recidivism among adolescent sexual perpetrators have typically ranged from 4% to 20% for sexual crimes and from 30% to 45% for nonsexual crimes during adolescence. Similarly, studies of adult sexual perpetrators have generally found rates of recidivism ranging from 5% to 18% for sexual crimes and from 36% to 68% for nonsexual crimes over a 4- to 5-year follow-up period.

Although there is an absence of longitudinal research comparing young sexual perpetrators with young nonsexual perpetrators on their antisocial behavior trajectories, a number of cross-sectional studies with appropriate comparison groups have demonstrated that adolescent sexual perpetrators generally have similar criminal histories to adolescent nonsexual perpetrators (e.g., Butler & Seto, 2002; Jacobs, Kennedy, & Meyer, 1997; Ronis & Borduin, 2007). Furthermore, longitudinal studies that have compared adults whose arrest histories included sexual offenses with adults whose histories did not include such offenses found similar (or slightly lower) recidivism rates for serious (i.e., index) crimes among sexual perpetrators (Langan et al., 2003; Sample & Bray, 2003). Therefore, it seems likely that young sexual perpetrators generally share antisocial behavior trajectories in common with youths arrested for serious nonsexual offenses only.

## Present Study

Because sexual perpetrators vary in their patterns of sexual aggression and other antisocial behaviors during adolescence and emerging adulthood, it seems unlikely that all of these individuals follow the same antisocial behavior trajectory. To address this issue, we had three specific hypotheses in the present study. Consistent with the extant literature on antisocial behavior trajectories in general, we hypothesized that (a) there would be at least three groups with distinct trajectories based on differences in the onset, frequency, and persistence of antisocial behavior. We also hypothesized that (b) sexual perpetrators would have antisocial behavior trajectories similar to those of nonsexual perpetrators. Finally, we hypothesized that (c) the majority of sexual perpetrators would engage in frequent, persistent levels of antisocial behavior, whereas only a small segment of sexual perpetrators would commit few antisocial acts during adolescence and emerging adulthood.

## Method

### Participants

Participants were 1,725 individuals who were originally selected from the general population for inclusion in the National Youth Survey (NYS; Elliott, Ageton, Huizinga, Knowles, & Canter, 1983; Elliott, Huizinga, & Menard, 1989), a prospective longitudinal study of antisocial behavior in the United States. The present study included the first seven waves of data, which are publically available; the first five waves were collected in consecutive years (1976 to 1980), and the next two waves were collected in 1983 and 1986. The NYS researchers selected participants through a probability sample of households from the continental United States and used a self-weighting, multistage, cluster-sampling design (for a detailed description of the sampling procedure, see Elliott et al., 1983). The sample included seven cohorts of individuals born in consecutive years from 1959 through 1965 ($n$s = 197, 239, 253, 258, 269, 257, and 252, respectively). Thus, respondents during the first wave were 11 to 17 years old. Attrition over the seven surveys (i.e., waves) included in the present study was relatively low (i.e., 20%). Age, sex, and race breakdowns across the seven waves were consistent (see Table 1), indicating that the sam-

ple remained representative of the general population with respect to these variables.

For our study, each individual was identified as having perpetrated a sexually aggressive act (i.e., as a sexual perpetrator) if he or she reported during any wave that he or she had sexually assaulted or sexually coerced another person. Individuals who reported serious non-sexually aggressive behaviors (i.e., nonsexual perpetrators) were identified if they (a) indicated that they had committed at least one nonsexual index crime (e.g., physical assault, burglary) during any wave of the survey and (b) did not report any sexual aggression during any wave. The remainder of the sample (hereafter referred to as *nondelinquents*) did not report any sexual aggression or nonsexual index crime but may have engaged in less serious delinquent behavior (e.g., drug use, disorderly conduct) across any of the seven waves.

### Procedure

In the first wave, individuals were asked to voluntarily participate in a study that would follow them into adulthood to examine their ongoing behaviors. Individuals then participated in structured face-to-face interviews that lasted approximately 1 hr each and that were repeated during subsequent waves. The individual youths (later young adults) were paid a modest amount for their participation (i.e., $5

Table 1

*Summary Demographics for the National Youth Survey Across Seven Waves of Study*

| Variable | Wave number (year of study) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 (1976) | 2 (1977) | 3 (1978) | 4 (1979) | 5 (1980) | 6 (1983) | 7 (1986) |
| Sample Size ($N$) | 1,725 | 1,655 | 1,626 | 1,543 | 1,494 | 1,496 | 1,384 |
| % Original sample | 100 | 95.9 | 94.3 | 89.4 | 86.6 | 86.7 | 80.2 |
| Age (years) | | | | | | | |
| $M$ | 13.87 | 14.86 | 15.86 | 16.84 | 17.81 | 20.82 | 23.84 |
| $SD$ | 1.95 | 1.94 | 1.95 | 1.95 | 1.95 | 1.95 | 1.96 |
| Sex (%) | | | | | | | |
| Male | 53.2 | 53.1 | 53.1 | 52.2 | 52.4 | 51.5 | 50.7 |
| Female | 46.8 | 46.9 | 46.9 | 47.8 | 47.6 | 48.5 | 49.3 |
| Race (%)[a] | | | | | | | |
| Caucasian | 78.9 | 79.4 | 79.8 | 79.2 | 79.1 | 78.7 | 81.3 |
| African American | 15.1 | 14.7 | 14.7 | 15.0 | 15.1 | 15.6 | 13.7 |
| Hispanic | 4.4 | 4.2 | 3.9 | 4.1 | 4.1 | 4.0 | 3.5 |
| Asian | 1.0 | 1.0 | 0.9 | 1.0 | 0.9 | 1.1 | 0.9 |
| Native American | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 |
| Other | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 |

[a] Due to rounding, total percent is greater than 100 in some waves.

for each of the first 6 waves and $20 for the seventh wave).

In most instances, the structured interview occurred in the individual's home. In those instances when privacy of the interview could not be guaranteed by the family in the home, the interview was conducted in a setting (e.g., community center) in which privacy could be assured. The investigators explained to the family that any information provided by the youth was confidential and could not be released to any person or agency without the family's consent. All data were protected by a Privacy Certificate (United States Department of Justice) and a Certificate of Confidentiality (United States Department of Health and Human Services).

## Measures

The NYS was designed to assess a variety of problem behaviors across the adolescent and emerging adult years and to examine the trajectories of such behaviors (Elliott, Huizinga, & Ageton, 1985). Comprehensive measures provided both prevalence and frequency estimates of antisocial and other problem behaviors at each wave. For the present study, measures of sexual aggression and serious nonsexual antisocial behavior were used to identify sexual perpetrators and nonsexual perpetrators, respectively.

The primary assessment of antisocial behavior employed in the NYS at each wave was a self-report delinquency (SRD) measure that consisted of 39 ratio-scale items (i.e., the respondent reports an absolute frequency for each item). The SRD (Elliott et al., 1985) is the most widely used self-report delinquency measure in the social science research literature and is thought to provide a more valid estimate of delinquency than criminal records (Kazemian & Farrington, 2005). The SRD items include serious crimes (i.e., index offenses; homicide is excluded) that are measured in the (2012) Uniform Crime Reports (Federal Bureau of Investigation, 2012); nonindex felonies (e.g., drug possession); and status offenses (i.e., behaviors that are illegal only for juveniles), which were excluded in the present study to maintain consistency across the multiple years of assessment. Participants were interviewed between January and March in each wave and were asked how many times in the preceding year they had com-

mitted specific offenses. Test–retest reliability (Pearson $r$) for the SRD ranges from .70 to .95 over a 2- to 4-week interval (Huizinga & Elliott, 1986; Piquero, Macintosh, & Hickman, 2002), and internal consistency ($\alpha$) ranges from .79 to .99 (e.g., Beyers & Loeber, 2003; Huizinga & Elliott, 1986). There is also an extensive literature on the convergent validity of the SRD with arrest records (e.g., Huizinga & Elliott, 1986; Piquero et al., 2002). Several studies (e.g., Duncan, Duncan, & Strycker, 2001; Miyazaki & Raudenbush, 2000) have demonstrated that there is no significant Age × Cohort interaction in the NYS data, particularly for the SRD. This suggests that there is substantial overlap among the criminal trajectories across cohorts and that the data, despite being assessed with a cohort-sequential design, accurately represent the development of individuals from ages 11 to 27 years. Following the recommendations of Elliott and colleagues (Elliott et al., 1985; Huizinga & Elliott, 1986), the present study included a summed index of the frequency reported for each SRD item. An index was computed for each wave of the study, and these indices were used in evaluating the individual trajectories of antisocial behavior.

**Sexually aggressive behavior.** Individuals with histories of sexually aggressive behavior were identified on the basis of having responded on the SRD during any wave that they "had or tried to have sexual relations with someone against his or her will," "pressured or pushed someone to do more sexually than he or she wanted," or "physically hurt someone to get him or her to have sex with them" at least once in the previous year.

**Nonsexual antisocial behavior.** Consistent with the Federal Bureau of Investigation's (2012) classification of nonsexual index (serious) crimes, nonsexual perpetrators were identified on the basis of having responded on the SRD during any wave that they "attacked someone with the idea of seriously hurting or killing him or her," "had been involved in gang fights," "used force (strong-arm methods) to get money from other people," "stolen (or tried to steal) a motor vehicle or something worth more than $50," or "broke into a building or vehicle to steal something" at least once in the previous year. If individuals had also reported committing sexually aggressive behaviors, they were identified only as sexual perpetrators.

## Results

### Preliminary Description of the Sample

During the first seven waves, 13% of males ($n = 116$) and 2% of females ($n = 15$) reported perpetrating at least one sexually aggressive behavior. The sexual perpetrator sample was 69% Caucasian ($n = 90$), 23% African American ($n = 30$), and 8% other ethnicities ($n = 11$). Approximately 59% ($n = 77$) of the sexual perpetrator sample reported at least one sexually aggressive behavior prior to 18 years of age, and the remainder ($n = 54$) reported committing their first sexually aggressive behavior after age 18. The sexual perpetrator sample reported an average of 3.64 sexually aggressive behaviors ($SD = 3.82$, range $= 1–20$), and approximately 24% ($n = 32$) of the sample reported that they had perpetrated these behaviors across multiple waves ($M = 1.40$ waves, $SD = 0.83$, range $= 1–5$). The majority of the sexual perpetrator sample (59%; $n = 77$) reported pressuring or pushing someone (i.e., a date or friend) to do more sexually than he or she wanted ($M = 2.97$ acts, $SD = 3.40$, range $= 1–16$). About two thirds (66%; $n = 87$) of the 131 sexual perpetrators reported committing physically assaultive sexual behaviors ($M = 2.75$ acts, $SD = 3.01$, range $= 1–20$). Most sexual perpetrators (78%, $n = 102$) reported at least one nonsexual serious antisocial behavior in addition to their sexually aggressive behaviors.

In total, 605 individuals (46% of males, $n = 422$; 23% of females, $n = 183$) reported committing at least one nonsexual serious antisocial behavior but no sexually aggressive behavior during the seven waves of the survey. The nonsexual perpetrator sample was 76% Caucasian ($n = 458$), 18% African American ($n = 108$), and 6% other ethnicities ($n = 39$). There were 989 participants (41% of males, $n = 380$; 75% of females, $n = 609$) who did not report any serious (i.e., index) offenses; this sample (i.e., nondelinquents) was 82% Caucasian ($n = 813$), 12% African American ($n = 122$), and 6% ($n = 54$) other ethnicities.

### Analyses

Latent growth mixture modeling (LGMM) was used to investigate antisocial behavior trajectories in the entire sample of individuals in

the NYS. The LGMM approach (Muthén & Muthén, 2000) can be viewed as a more general form of conventional growth curve modeling. In conventional modeling, a growth curve is estimated for the population based on repeated measures on a single construct (e.g., antisocial behavior), and individual differences in trajectories of that construct are incorporated by allowing for continuous variability of the growth factors. In contrast, the LGMM approach assumes that the population is composed of a mixture of distinct subgroups, each defined by a prototypical growth curve. LGMM allows for evaluation of between-groups differences in the shapes of trajectories and, as such, is ideally suited for identifying and modeling heterogeneity in antisocial behavior trajectories within a given population (Nagin & Tremblay, 1999).

### Description of Fit Indices

The models of the LGMM approach were estimated through several steps using Mplus Version 7.0 (Muthén & Muthén, 2012). First, a single-class growth curve of antisocial behavior was fit to the seven waves of data for all participants in the NYS sample ($N = 1,725$). Next, the number of latent growth trajectories was assessed for the entire sample. To determine the optimal number of trajectories, we examined several different fit indices. Although there is no "gold standard" fit index for selection of the optimal number of trajectories, the Bayesian information criterion (BIC) has been recommended as a key index (Muthén, 2001; Nagin, 2005). The BIC considers both the likelihood value of a model and the number of estimated parameters. Generally, the model with the smallest absolute BIC value indicates the best model fit. However, it has been noted that the BIC, like other information-criterion indices, can sometimes overestimate the optimal number of trajectories (Nylund, Asparouhov, & Muthén, 2007). Thus, following the recommendations of Bauer and Curran (2004), we examined other fit statistics, including the likelihood ratio test (LRT), the Lo–Mendell–Rubin (LMR) LRT, Akaike's information criterion (AIC), log likelihood (LL), as well as the posterior probabilities, indicating whether each person belonged to a particular trajectory. Classification was considered acceptable for diagonal values close to 1 and off-diagonal values

close to 0. Summary measures of the classifications were given by the entropy statistic, with entropy values ranging from 0 to 1, and with values closer to 1 representing good classification quality. Using Monte Carlo simulation of the aforementioned indices, Nylund et al. (2007) found the LRT to be particularly useful for determining the maximum number of trajectories in a model.

## Model Characteristics

Several characteristics were specified in the LGMM analyses. First, error variances of the growth parameters were specified as being nonconstant (i.e., freely estimated) across the seven assessment waves but constant (i.e., set equal) across the trajectory classes. Second, growth factor variances and covariances were not estimated (i.e., were fixed to 0). Third, different growth parameters (i.e., linear, quadratic, and cubic) were specified across the various models, and results consistently demonstrated that quadratic growth models fit the data better than linear or cubic growth models. This pattern is consistent with the extant literature and suggests that levels of antisocial behavior generally increase during adolescence but decrease in adulthood (see Sweeten, Piquero, & Steinberg, 2013).

## Description of Best-Fitting Model

Based upon the identification of a distinct number of trajectories in the criminal literature, we tested models specifying one to six latent trajectory classes. Comparisons of fit indices across the models indicated that a three-class model fit the data best. Table 2 presents the fit information for all growth mixture models. Although the six-class model had the lowest BIC, AIC, and LL and the four-class model had the highest entropy, LRT and LMR-LRT fit statistics demonstrated that the three-class model was the best solution. Following the recommendations of Nylund et al. (2007) and consistent with prevailing theoretical models, we selected the three-class model.

In the three-class model (see Figure 1), the trajectories can be described as follows: (1) rare or low-level perpetrators (26.0%), consisting of individuals who seldom reported antisocial behavior; (2) moderate-level perpetrators (52.0%), including individuals who started with a low level of antisocial behavior, increased gradually in their antisocial behavior to a late peak at 24 years of age, and declined afterward; and (3) chronic perpetrators (22.0%), consisting of individuals who started with the highest level of antisocial behavior, increased until late adolescence, and declined afterward. The estimated growth factor means for each trajectory were as follows: (1) For the low-level perpetrators, the intercept, linear, and quadratic factors had means of 0.42 ($SE = 0.08$), 0.12 ($SE = 0.28$), and 0.19 ($SE = 0.10$), respectively; (2) the means for the intercept, linear, and quadratic factors for the moderate-level perpetrators were 0.20 ($SE = 0.05$), 2.46 ($SE = 0.26$), and $-0.97$ ($SE = 0.16$), respectively; (3) for the chronic perpetrators, the intercept, linear, and quadratic factor means were 1.15 ($SE = 0.17$), 2.60 ($SE = 0.33$), and $-1.49$ ($SE = 0.13$), respectively.

## Sexual Aggression in the Three-Class Model

Additional analyses were conducted to examine the odds ratio of the mixture indicator (i.e.,

Table 2
*Fit Indices of Growth Mixture Models With 1 to 6 Classes Specified*

| Number of classes | BIC | AIC | LL | E | LRT $p$ value | LMR LRT $p$ value |
|---|---|---|---|---|---|---|
| 1 | 21283 | 21158 | $-10556$ | — | — | — |
| 2 | 21080 | 20933 | $-10439$ | 0.60 | .0179 | .0199 |
| 3 | 20973 | 20804 | $-10371$ | 0.61 | .0099 | .0111 |
| 4 | 20935 | 20745 | $-10337$ | 0.68 | .2713 | .2788 |
| 5 | 20919 | 20706 | $-10314$ | 0.68 | .3414 | .3485 |
| 6 | 20903 | 20669 | $-10291$ | 0.62 | .2887 | .2940 |

*Note.* BIC = Bayesian information criterion; AIC = Akaike information criterion; LL = log likelihood; E = entropy; LRT = likelihood ratio test; LMR LRT = Lo-Mendell-Rubin likelihood ratio test.
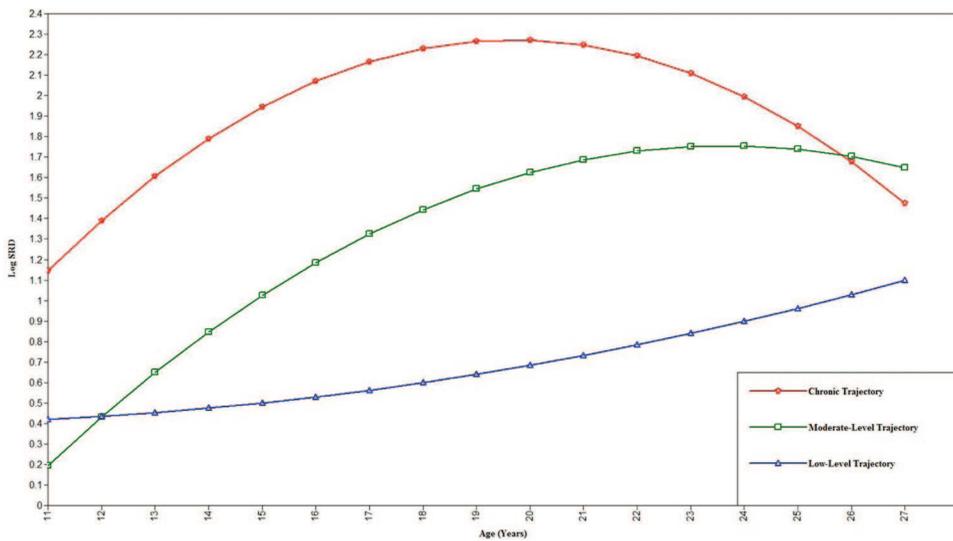
*Figure 1.* Plot of latent growth trajectories for the three-class model.

identification as having engaged in sexual aggression) of trajectory class membership in the three-class model. The odds ratio indicates how the odds of being in a particular trajectory change depending on whether an individual has committed a sexually aggressive behavior. Thus, we obtained the probability of an individual being identified as a sexual perpetrator at any time throughout the seven waves given a particular trajectory class membership. The probability of an individual having reported any sexual aggression given each trajectory class was then compared with the probability of being classified a nonsexual perpetrator given each trajectory class. Chi-square tests were also used to determine whether the various groups were different from each other. In the three-group comparisons (i.e., sexual perpetrators vs. nonsexual perpetrators vs. nondelinquents), we used a Bonferroni adjusted $\alpha$ level (.05/3) to minimize familywise error.

As demonstrated by the odds ratios in Table 3, the ratios of (a) sexual perpetrators to nonsexual perpetrators, (b) sexual perpetrators to nondelinquents, and (c) nonsexual perpetrators to nondelinquents were consistently higher in the chronic trajectory than in the low-level trajectory. These ratios were also consistently higher when the moderate-level trajectory was compared with the low-level trajectory and when the chronic trajectory was compared with

the moderate-level trajectory. There was also a significant omnibus difference in proportions of sexual perpetrators, nonsexual perpetrators, and nondelinquents across the three trajectories, $\chi^2(4, N = 1,725) = 226.96$, $p < .001$. Post hoc analyses revealed significant differences in trajectory proportions between sexual perpetrators and nondelinquents, $\chi^2(2, n = 1,120) = 103.15$, $p < .001$, and between nonsexual perpetrators and nondelinquents, $\chi^2(2, n = 1,594) = 186.32$, $p < .001$, but there was no significant difference in trajectory proportions between sexual perpetrators and nonsexual perpetrators, $\chi^2(2, n = 736) = 3.59$, $p = .17$.

For sexual perpetrators, a one-way analysis of variance (ANOVA) was conducted to examine differences between the three antisocial behavior trajectories in age at first reported sexual aggression. There was a significant difference between the three trajectories, $F(2, 129) = 8.48$, $p < .001$, with sexual perpetrators in either the low-level trajectory ($M = 14.70$, $SD = 3.16$) or the chronic trajectory ($M = 16.58$, $SD = 3.29$) reporting their first sexual aggression at a younger age than did sexual perpetrators in the moderate-level trajectory ($M = 18.48$, $SD = 3.34$). However, there was no significant difference in age at first sexual aggression between sexual perpetrators in the low-level trajectory and sexual perpetrators in the chronic trajectory. From a categorical perspective, 70.9% ($n = 39$)

Table 3
*Sexual Perpetrator Versus Nonsexual Perpetrator Versus Nondelinquent Classification Within the Three-Class Model*

| Specified trajectory | Group | | | Total (%) | $OR_{SP \text{ vs. } NP}$ | | | $OR_{SP \text{ vs. } ND}$ | | | $OR_{NP \text{ vs. } ND}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SP | NP | ND | | LL | ML | CT | LL | ML | CT | LL | ML | CT |
| LL | 2.2% | 17.0% | 80.8% | 448 (26.0%) | 1 | 1.59 | 1.95 | 1 | 4.63 | 17.94 | 1 | 2.91 | 9.18 |
| ML | 7.4% | 35.1% | 57.5% | 897 (52.0%) | 0.63 | 1 | 1.23 | 0.22 | 1 | 3.87 | 0.34 | 1 | 3.16 |
| CT | 14.5% | 56.3% | 29.2% | 380 (22.0%) | 0.51 | 0.82 | 1 | 0.06 | 0.26 | 1 | 0.11 | 0.32 | 1 |
| Overall | 131 (7.6%) | 605 (35.1%) | 989 (57.3%) | | | | | | | | | | |

*Note.* SP = sexual perpetrator; NP = nonsexual perpetrator; ND = nondelinquent; LL = low-level trajectory; ML = moderate-level trajectory; CT = chronic trajectory; $OR_{SP \text{ vs. } NP}$ = probability(SP)/probability(NP) | specified trajectory/probability(SP)/probability(NP) | comparison trajectory; $OR_{SP \text{ vs. } ND}$ = probability(SP)/probability(ND) | specified trajectory/probability(SP)/probability(ND) | comparison trajectory; $OR_{NP \text{ vs. } ND}$ = probability(NP)/probability(ND) | specified trajectory/probability(NP)/probability(ND) | comparison trajectory.

of sexual perpetrators in the chronic trajectory and 90.0% ($n = 9$) of sexual perpetrators in the low-level trajectory reported their first sexual aggression prior to 18 years old, whereas only 43.9% ($n = 29$) of sexual perpetrators in the moderate-level trajectory reported such behavior prior to 18 years of age. Nevertheless, it is important to note that some adolescents may have perpetrated sexually aggressive behavior that was never reported because it occurred prior to their involvement in the study.

## Discussion

The purpose of this study was to examine whether sexual perpetrators have different antisocial behavior trajectories than do nonsexual perpetrators. We also examined whether there are subgroups of sexual perpetrators with different antisocial behavior trajectories from each other. Trajectories were identified by examining how often a representative sample of individuals in the United States engaged in general antisocial behavior during adolescence (ages 11 to 17 years) and emerging adulthood (ages 18 to 27 years). The results suggest that the trajectories of sexual perpetrators are very similar to those of nonsexual perpetrators. The results also suggest that there are subgroups of sexual perpetrators, each with different antisocial behavior trajectories.

In support of our first hypothesis, we found that sexual perpetrators, like nonsexual perpetrators, had three different antisocial behavior trajectories: (1) low level, (2) moderate level, and (3) chronic. These trajectories are consistent with those described by previous researchers (e.g., Moffitt, 1993; Patterson & Yoerger, 2002) for offenders in general, regardless of whether their antisocial activities were sexual or nonsexual in nature. Furthermore, in support of our second hypothesis, we found that sexual perpetrators were present on these three trajectories in proportions that were very similar to those of nonsexual perpetrators. Moreover, in support of our third hypothesis, we found that the majority of both sexual perpetrators and nonsexual perpetrators had chronic and persistent patterns of antisocial behavior during adolescence and emerging adulthood (i.e., chronic trajectory) or predominantly during adolescence (i.e., moderate-level trajectory). Few sexual perpetrators and nonsexual perpetrators were present on the low-level trajectory. Thus, these findings suggest that sexual perpetrators and nonsexual perpetrators are generally very similar, at least in terms of their overall trajectories of antisocial behavior.

Sexual perpetrators and nonsexual perpetrators may be on the same trajectories because they generally commit the same types of nonsexual antisocial acts (Van Wijk et al., 2006). Indeed, prior studies (e.g., Butler & Seto, 2002; Elliott, 1995) have indicated that as many as 92% of juvenile sexual offenders also commit nonsexual crimes. In the present study, nearly all of the sexual perpetrators (95%, $n = 125$) reported committing at least one prosecutable nonsexual criminal act (including index and nonindex crimes). Given that sexual aggression is a low base-rate phenomenon (even among identified sexual offenders) and that sexual perpetrators in the present study were primarily in the chronic and moderate-level trajectories, it

seems likely that most sexual perpetrators commit a broader range of antisocial acts than sexual aggression. Thus, in lieu of classifying individuals as sexual perpetrators or nonsexual perpetrators, the present findings demonstrate that the critical differences between individuals may be in their specific trajectories of antisocial behavior.

Many of the causal factors that underlie sexual perpetration versus nonsexual perpetration may be the same, whereas different trajectories of antisocial behavior may have causal pathways that are different from each other. Although there is some evidence that sexual offenders and nonsexual offenders do differ on certain characteristics (e.g., atypical sexual interests, exposure to sexual violence), reviewers (e.g., Seto & Lalumière, 2010) have noted that much of the research in this area has serious methodological flaws (e.g., absence of suitable comparison groups in most studies, inclusion of incarcerated samples). In addition, at least a few methodologically rigorous cross-sectional studies (Ronis & Borduin, 2007; Van Wijk et al., 2005) have demonstrated that sexual offenders also share a number of common psychosocial problems with nonsexual offenders. Furthermore, some longitudinal research has demonstrated that different antisocial behavior trajectories are linked with a number of unique psychosocial factors and may be associated with specific causal pathways. For example, Moffitt and colleagues (2002) have found that life-course-persistent offenders (i.e., chronic offenders) generally exhibit undercontrolled temperament, psychopathic personality traits, violent behavior, and family problems. In contrast, adolescence-limited offenders (i.e., moderate-level offenders) are more likely to be impulsive, have mental health problems, and associate with deviant peers. In light of the results from the present study, it seems important to examine whether the individuals in each trajectory, regardless of whether they perpetrated sexual or other serious antisocial behavior, have different psychosocial characteristics. In effect, it may be more critical for researchers, treatment providers, and policymakers to classify individuals based on their broad involvement in antisocial behavior than on any particular antisocial act (e.g., sexual aggression).

## Limitations and Future Directions

Although the present study included some major strengths (e.g., prospective longitudinal design, large representative sample), several methodological limitations should be noted. First, given that the NYS data were obtained using an accelerated, longitudinal design, we did not separate adolescent sexual perpetrators from emerging adult sexual perpetrators in our LGMM analyses. Indeed, because we could not obtain information about the participants before (i.e., left-hand censoring) or after (i.e., right-hand censoring) the waves of the present study, it is possible that some individuals committed sexual or other serious crimes during times other than those that were assessed. Second, although we examined the heterogeneity of antisocial behavior in general, it is likely that our sample was heterogeneous in other ways (e.g., age of first sexual aggression, victim characteristics). As such, our findings may have masked underlying differences among sexual perpetrators. Third, although the present study employed a large representative sample, there were relatively few sexual perpetrators. This smaller subsample precluded conducting separate LGMM analyses to determine whether the trajectory models were consistent for sexual perpetrators and nonsexual perpetrators. Fourth, although the SRD is regarded as one of the best validated measures of self-reported delinquency (e.g., Kazemian & Farrington, 2005), measures of antisocial behavior using other informants (e.g., parents) or methods (e.g., arrest records) might yield different results. Finally, because we assigned equal weights to various antisocial acts on the SRD to calculate an overall index of antisocial behavior, it is possible that sexual perpetrators engaged in different types of antisocial acts (e.g., more severe) than the other groups. Even so, there is no evidence from cross-sectional studies (see Seto & Lalumière, 2010) that sexual perpetrators and nonsexual perpetrators participate in antisocial activities that differ in severity or type (except for sexual offenses).

The results of this study have implications for current public policies that attempt to manage sexual perpetrators' risk of future offending (e.g., sex offender registration, community notification, postsentence detention and supervision). The effectiveness of these policies rests

on the ability of evaluators to accurately differentiate perpetrators according to risk level. In the absence of valid estimates of risk of reoffending, such policies may have unforeseen consequences (e.g., reduced reporting, adjudication, or prosecution of sexual offending; high financial and social cost-to-benefit ratio) and may fail to protect the community from victimization (Bonnar-Kidd, 2010; Letourneau & Armstrong, 2008). Fortunately, in the past decade, there has been considerable progress in the development of actuarial measures for the prediction of recidivism risk among adult sexual perpetrators (for a review, see Hanson & Morton-Bourgon, 2009). The most accurate of these measures are those designed for the prediction of general recidivism, and such measures would appear to be ideally suited to the assessment of risk for broad patterns of antisocial behavior like those identified in the present study. Although several risk assessment instruments have also been developed for young sexual perpetrators, research shows that these instruments often yield low predictive accuracy (see, e.g., Caldwell, Ziemke, & Vitacco, 2008; Hempel, Buck, Cima, & van Marle, 2013) and may perform differently depending on the age of the adolescent (Viljoen et al., 2008). Nevertheless, evaluators of young sexual perpetrators do have access to well-validated, general delinquency risk instruments with strong predictive validity and large empirical bases of support (e.g., Schwalbe, 2007). Furthermore, we concur with Miner et al. (2006) and others (e.g., Vitacco, Caldwell, Ryba, Malesky, & Kurus, 2009), who recommend that evaluators responding to queries for sexual recidivism risk in youth focus on short-term risk, acknowledge the fluid nature of both risk and sexuality in adolescent and emerging adult populations, and focus on the youth's social context in addition to individual risk factors.

## Clinical Implications

The broad antisocial behavior patterns reported by young sexual perpetrators in the present study may help to explain why the development of effective treatment approaches for such youths has been so challenging (for a review, see Dwyer & Letourneau, 2011). To date, most treatments for adolescent and emerging adult sexual perpetrators have used individual or group therapy to focus on presumed deficits of the offending youths (e.g., deviant sexual cognitions and arousal, low empathy toward victims) and have not addressed key social–ecological factors associated with delinquent behavior in general, including caregiver disturbance, problematic family relations, peer relations difficulties, and poor academic performance (Letourneau & Borduin, 2008). Based on our results and as discussed in a recent review (DeGue et al., 2013), however, it seems reasonable to suggest that comprehensive treatments that are effective with nonsexually perpetrating youth may hold some promise with sexually perpetrating youth as well. For example, multisystemic therapy (MST; Henggeler & Borduin, 1990) is a family- and community-based treatment model that was originally developed with adolescent violent and chronic nonsexual perpetrators (for a review, see Curtis, Ronan, & Borduin, 2004) and that has recently demonstrated significant reductions in the criminal activity of adolescent sexual perpetrators (e.g., Borduin, Schaeffer, & Heiblum, 2009; Letourneau et al., 2009). Such findings bode well for adapting other effective treatment models for adolescent nonsexual perpetrators (e.g., multidimensional treatment foster care; Chamberlain, 2003; functional family therapy; Alexander & Parsons, 1982) to the treatment of adolescent sexual perpetrators, given similar clinical emphases (i.e., focus on a comprehensive array of risk factors linked with serious antisocial behavior; ecologically valid service delivery).

## References

Adam Walsh Child Protection and Safety Act, 42 U.S.C. § 16901 (2006).

Alexander, J. F., & Parsons, B. V. (1982). *Functional family therapy: Principles and procedures.* Carmel, CA: Brooks/Cole. doi:10.1037/11621-000

Bauer, D. J., & Curran, P. J. (2004). The integration of continuous and discrete latent variable models: Potential problems and promising opportunities. *Psychological Methods, 9,* 3–29. doi:10.1037/1082-989X.9.1.3

Becker, J. V. (1998). What we know about the characteristics and treatment of adolescents who have committed sexual offenses. *Child Maltreatment, 3,* 317–329. doi:10.1177/1077559598003004004

Beyers, J. M., & Loeber, R. (2003). Untangling developmental relations between depressed mood and delinquency in male adolescents. *Journal of*

*Abnormal Child Psychology, 31,* 247–266. doi:10.1023/A:1023225428957

Bonnar-Kidd, K. K. (2010). Sexual offender laws and prevention of sexual evidence or recidivism. *American Journal of Public Health, 100,* 412–419. doi:10.2105/AJPH.2008.153254

Borduin, C. M., Schaeffer, C. M., & Heiblum, N. (2009). A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: Effects on youth social ecology and criminal activity. *Journal of Consulting and Clinical Psychology, 77,* 26–37. doi:10.1037/a0013035

Butler, S. M., & Seto, M. C. (2002). Distinguishing two types of adolescent sex offenders. *Journal of the American Academy of Child & Adolescent Psychiatry, 41,* 83–90. doi:10.1097/00004583-200201000-00015

Caldwell, M. F., Ziemke, M. H., & Vitacco, M. J. (2008). An examination of the sex offender registration and notification act as applied to juveniles: Evaluating the ability to predict sexual recidivism. *Psychology, Public Policy, and Law, 14,* 89–114. doi:10.1037/a0013241

Chaffin, M. (2008). Our minds are made up—Don't confuse us with the facts: Commentary on policies concerning children with sexual behavior problems and juvenile sex offenders. *Child Maltreatment, 13,* 110–121. doi:10.1177/1077559508314510

Chaffin, M., Letourneau, E., & Silovsky, J. F. (2002). Adults, adolescents, and children who sexually abuse children: A developmental perspective. In J. E. B. Myers, L. Berliner, J. Briere, C. T. Hendrix, C. Jenny, & T. A. Reid (Eds.), *The APSAC handbook on child maltreatment* (2nd ed., pp. 205–232). Thousand Oaks, CA: Sage.

Chamberlain, P. (2003). *Treating chronic juvenile offenders: Advances made through the Oregon multidimensional treatment foster care model.* Washington, DC: American Psychological Association. doi:10.1037/10596-000

Curtis, N. M., Ronan, K. R., & Borduin, C. M. (2004). Multisystemic treatment: A meta-analysis of outcome studies. *Journal of Family Psychology, 18,* 411–419. doi:10.1037/0893-3200.18.3.411

DeGue, S., Massetti, G. M., Holt, M. K., Teten Tharp, A., Valle, L. A., Matjasko, J. L., & Lippy, C. (2013). Identifying links between sexual violence and youth violence perpetration: New opportunities for sexual violence prevention. *Psychology of Violence, 3,* 140–156. doi:10.1037/a0029084

Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2001). Qualitative and quantitative shifts in adolescent problem behavior development: A cohort-sequential multivariate latent growth modeling approach. *Journal of Psychopathology and Behavioral Assessment, 23,* 43–50. doi:10.1023/A:1011091523808

Dwyer, R. G., & Letourneau, E. J. (2011). Juveniles who sexually offend: Recommending a treatment program and level of care. *Child and Adolescent Psychiatric Clinics of North America: Special Issue on Forensic Child and Adolescent Psychiatry, 20,* 413–429. doi:10.1016/j.chc.2011.03.007

Elder, G. H., Jr. (1998). The life course as developmental theory. *Child Development, 69,* 1–12. doi:10.2307/1132065

Elliott, D. S. (1995). *Lies, damn lies, and arrest statistics.* Boulder, CO: Center for the Study and Prevention of Violence.

Elliott, D. S., Ageton, S. S., Huizinga, D., Knowles, B. A., & Canter, R. J. (1983). *The prevalence and incidence of delinquent behavior: 1976–1980.* Boulder, CO: Behavioral Research Institute.

Elliott, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Elliott, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth: Delinquency, substance use, and mental health problems.* New York, NY: Springer-Verlag. doi:10.1007/978-1-4613-9637-6

Federal Bureau of Investigation, U. S. Department of Justice. (2012). Uniform crime reports. Retrieved from www.fbi.gov/stats-services/crimestats

Hanson, R. K., & Bussiere, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology, 66,* 348–362. doi:10.1037/0022-006X.66.2.348

Hanson, R. K., Gordon, A., Harris, A. J. R., Marques, J. K., Murphy, W., Quinsey, V. L., & Seto, M. C. (2002). First report of the collective outcome data project on the effectiveness of psychological treatment for sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 14,* 169–194. doi:10.1177/107906320201400207

Hanson, R. K., & Morton-Bourgon, K. E. (2009). The accuracy of recidivism risk assessments for sexual offenders: A meta-analysis of 118 prediction studies. *Psychological Assessment, 21,* 1–21. doi:10.1037/a0014421

Hempel, I., Buck, N., Cima, M., & van Marle, H. (2013). Review of risk assessment instruments for juvenile sex offenders: What is next? *International Journal of Offender Therapy and Comparative Criminology, 57,* 208–228. doi:10.1177/0306624X11428315

Henggeler, S. W., & Borduin, C. M. (1990). *Family therapy and beyond: A multisystemic approach to treating the behavior problems of children and adolescents.* Pacific Grove, CA: Brooks/Cole.

Huizinga, D. H., & Elliott, D. S. (1986). Reassessing the reliability and validity of self-report delinquency measures. *Journal of Quantitative Criminology, 2,* 293–327.

Jacobs, W. L., Kennedy, W. A., & Meyer, J. B. (1997). Juvenile delinquents: A between-group comparison study of sexual and nonsexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 9,* 201–217. doi:10.1007/BF02675065

Kazemian, L., & Farrington, D. P. (2005). Comparing the validity of prospective, retrospective, and official onset for different offending categories. *Journal of Quantitative Criminology, 21,* 127–147. doi:10.1007/s10940-005-2489-0

Langan, P. A., Schmitt, E. L., & Durose, M. R. (2003). *Recidivism of sex offenders released from prison in 1994.* Washington, DC: United States Department of Justice. doi:10.1037/e532152006-001

Letourneau, E. J., & Armstrong, K. S. (2008). Recidivism rules for registered and nonregistered juvenile sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 20,* 393–408. doi:10.1177/1079063208324661

Letourneau, E. J., & Borduin, C. M. (2008). The effective treatment of juveniles who sexually offend: An ethical imperative. *Ethics & Behavior, 18,* 286–306. doi:10.1080/10508420802066940

Letourneau, E. J., Henggeler, S. W., Borduin, C. M., Schewe, P. A., McCart, M. R., Chapman, J. E., & Saldana, L. (2009). Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial. *Journal of Family Psychology, 23,* 89–102. doi:10.1037/a0014352

Letourneau, E. J., & Miner, M. H. (2005). Juvenile sex offenders: A case against the legal and clinical status quo. *Sexual Abuse: Journal of Research and Treatment, 17,* 293–312. doi:10.1177/107906320501700304

Loeber, R., & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. *Annual Review of Psychology, 48,* 371–410. doi:10.1146/annurev.psych.48.1.371

McCann, K., & Lussier, P. (2008). Antisociality, sexual deviance, and sexual reoffending in juvenile sex offenders. *Youth Violence and Juvenile Justice, 6,* 363–385. doi:10.1177/1541204008320260

Miner, M., Borduin, C., Prescott, D., Bovensmann, H., Schepker, R., Du Bois, R., . . . Friedeman, P. (2006). Standards of care for juvenile sexual offenders of the International Association for the Treatment of Sexual Offenders. *Sexual Offender Treatment, 1,* 1–7.

Miyazaki, Y., & Raudenbush, S. W. (2000). Tests for linkage of multiple cohorts in an accelerated longitudinal design. *Psychological Methods, 5,* 44–63. doi:10.1037/1082-989X.5.1.44

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100,* 674–701. doi:10.1037/0033-295X.100.4.674

Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14,* 179–207. doi:10.1017/S0954579402001104

Muthén, B. (2001). Second-generation structural equation modeling with combination of categorical and continuous latent variables: New opportunities for latent class/latent growth modeling. In L. Collins & A. Sayer (Eds.), *New methods for the analysis of change* (pp. 291–322). Washington, DC: American Psychological Association. doi:10.1037/10409-010

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24,* 882–891. doi:10.1111/j.1530-0277.2000.tb02070.x

Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Authors.

Nagin, D. S. (2005). *Group-based modeling of development.* Cambridge, MA: Harvard University Press.

Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70,* 1181–1196. doi:10.1111/1467-8624.00086

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth-mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14,* 535–569. doi:10.1080/10705510701575396

Patterson, G. R., & Yoerger, K. (2002). A developmental model for early- and late-onset delinquency. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 147–172). Washington, DC: American Psychological Association. doi:10.1037/10468-007

Piquero, A. R., Farrington, D. P., Nagin, D. S., & Moffitt, T. E. (2010). Trajectories of offending and their relation to life failure in late middle age: Findings from the Cambridge Study in Delinquent Development. *Journal of Research in Crime and Delinquency, 47,* 151–173. doi:10.1177/0022427809357713

Piquero, A. R., Macintosh, R., & Hickman, M. (2002). The validity of a self-reported delinquency scale: Comparisons across gender, age, race, and place of residence. *Sociological Methods & Research, 30,* 492–529. doi:10.1177/0049124102030004002

Ronis, S. T., & Borduin, C. M. (2007). Individual, family, peer, and academic characteristics of male

juvenile sexual offenders. *Journal of Abnormal Child Psychology, 35,* 153–163. doi:10.1007/s10802-006-9058-3

Sample, L. L., & Bray, T. M. (2003). Are sex offenders dangerous? *Criminology and Public Policy, 3,* 59–82. doi:10.1111/j.1745-9133.2003.tb00024.x

Schwalbe, C. S. (2007). Risk assessment for juvenile justice: A meta-analysis. *Law and Human Behavior, 31,* 449–462. doi:10.1007/s10979-006-9071-7

Seto, M. C., & Lalumière, M. L. (2010). What is so special about male adolescent sexual offending? A review and test of explanations through meta-analysis. *Psychological Bulletin, 136,* 526–575. doi:10.1037/a0019700

Sweeten, G., Piquero, A. R., & Steinberg, L. (2013). Age and the explanation of crime, revisited. *Journal of Youth and Adolescence, 42,* 921–938. doi:10.1007/s10964-013-9926-4

Thornberry, T. P. (1997). *Developmental theories of crime and delinquency.* New Brunswick, NJ: Transaction.

Vandiver, D. M. (2006). A prospective analysis of juvenile male sex offenders: Characteristics and recidivism rates as adults. *Journal of Interpersonal Violence, 21,* 673–688. doi:10.1177/0886260506287113

Van Wijk, A., Loeber, R., Vermeiren, R., Pardini, D., Bullens, R., & Doreleijers, T. (2005). Violent juvenile nonsex offenders: Explorative findings from the Pittsburgh Youth Study. *Sexual Abuse: A Journal of Research and Treatment, 17,* 333–352. doi:10.1177/107906320501700306

Van Wijk, A., Vermeiren, R., Loeber, R., Hart-Kerkhoffs, L., Doreleijers, T., & Bullens, R.

(2006). Juvenile sex offenders compared to non-sex offenders: A review of the literature 1995–2005. *Trauma, Violence, & Abuse, 7,* 227–243. doi:10.1177/1524838006292519

Viljoen, J. L., Scalora, M., Cuadra, L., Bader, S., Chávez, V., Ullman, D., & Lawrence, L. (2008). Assessing risk for violence in adolescents who have sexually offended: A comparison of the J-SOAP-II, J-SORRAT-II, and SAVRY. *Criminal Justice and Behavior, 35,* 5–23. doi:10.1177/0093854807307521

Vitacco, M. J., Caldwell, M., Ryba, N. L., Malesky, A., & Kurus, S. J. (2009). Assessing risk in adolescent sexual offenders: Recommendations for clinical practice. *Behavioral Sciences & the Law, 27,* 929–940. doi:10.1002/bsl.909

Wanklyn, S. G., Ward, A. K., Cormier, N., Day, D. M., & Newman, J. E. (2012). Can we distinguish juvenile violent sex offenders, violent non-sex offenders, and versatile violent sex offenders based on childhood risk factors? *Journal of Interpersonal Violence, 27,* 2128–2143. doi:10.1177/0886260511432153

Wiesner, M., & Windle, M. (2004). Assessing covariates of adolescent delinquency trajectories: A latent growth mixture modeling approach. *Journal of Youth and Adolescence, 33,* 431–442. doi:10.1023/B:JOYO.0000037635.06937.13

---

## Correction to Runions et al. (2013)

In the article "Cyber-aggression and victimization and social information study processing: Integrating the medium and the message" by Kevin Runions, Jennifer D. Shapka, Julian Dooley, and Kathryn Modecki (*Psychology of Violence*, Vol. 3, No. 1, pp. 9–26. doi:10.1037/a0030511), the name of author Kathryn Modecki was misspelled Kathyrn Modeck in the byline and author note. The online version of this article has been corrected.

DOI: 10.1037/a0034503