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Christopher J. Sullivan, Pamela Wilcox and Graham C. Ousey
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TRAJECTORIES OF VICTIMIZATION FROM EARLY TO MID-ADOLESCENCE

CHRISTOPHER J. SULLIVAN
PAMELA WILCOX
University of Cincinnati
GRAHAM C. OUSEY
College of William and Mary

A rapidly growing body of criminological research focuses on longitudinal trajectories of offending, with the aim of exploring stability and change in antisocial behavior. A particularly intriguing debate within this area involves the issue of whether there are multiple classes of offenders defined by distinct longitudinal patterns of offending. Parallel research on criminal victimization, however, is lacking, with few studies exploring potential variation in individual trajectories of victimization. The current analysis uses data from a panel of nearly 4,000 adolescents observed across a 4-year period to address this question. The authors examined whether there are distinct classes of victimization trajectories across this time period. The analysis revealed four groups. Descriptive analyses for key correlates of victimization were then conducted to explore their potential correspondence with those of the observed victimization classes. The findings have implications for theory and empirical research regarding between-individual differences and intraindividual change in victimization.

Keywords: victimization; latent classes; school crime

Research suggests that criminal victimization is a highly nonrandom, concentrated phenomenon. Within the general population, most individuals experience no incidents of victimization, whereas on the other end of the spectrum, a small group of persons experience victimization repeatedly, thereby accounting for a large percentage of the total number of victimizations reported. Using repeated cross-sectional waves of the British Crime Survey, for instance, Farrell and Pease (1993) demonstrated that approximately 60% of persons surveyed reported no victimization experiences, whereas just more than 4% of persons surveyed reported five or more victimization incidents in a single wave. This small group of repeat victims accounted for approximately 45% of all reported victimization incidents. Lauritsen and Davis Quinet (1995) revealed similar clustering in analysis of the National Youth Survey, where 5% or less of sampled youth accounted for 39% to 63% of the total reported victimization incidents within four different crime categories (assault, larceny, vandalism, and robbery). More recently, analysis of data from a nationally representative sample of youth showed that 62% were classified as nonvictims or “sparsely victimized,” whereas 11% were victimized at relatively high rates across multiple types of victimization (Reid & Sullivan, 2009). This clustering of high-frequency victimization within a relatively small subset of individuals is remarkably similar to a well-established
pattern in studies of offending, in which a small percentage of individuals account for a majority of all offenses reported in a sample (e.g., Piquero, Farrington, & Blumstein, 2007; Shannon, 1980, 1988; Tracy, Wolfgang, & Figlio, 1990).

Despite this phenomenon of “hot victims” (or “hot dots”) within cross-sectional data, we have little knowledge about the extent of intraindividual stability or change in victimization patterns, particularly for individuals who differ in terms of the noted pattern of victimization “concentration.” Although longitudinal research on victimization exists, it has tended to model growth or change in victimization across sample respondents as a whole rather than investigate the possibility of different patterns of change among subgroups of individuals. Furthermore, such longitudinal analysis has produced somewhat inconsistent evidence in terms of how victimization at one time point correlates with victimization at a later time point (cf. Lauritsen & Davis Quinet, 1995; Ousey, Wilcox, & Brummel, 2008). Although these inconsistencies might be attributable to different samples or other methodological variations across studies, there also is theory to support the idea that individuals may differ in their temporal experiences with criminal victimization. For example, for a large share of the population, initially low victimization levels may remain stable, whereas for a much smaller group, initially high victimization levels may be retained across time. In contrast to these images of relative stability, it also may be possible that some individuals with initially low levels of victimization may experience sharp increases in victimization over time, whereas others with initially high levels of victimization may see a temporal decline in their victimization experiences because of changes in lifestyle or associates (e.g., Ousey et al., 2008, for a recent review).

Unfortunately, to date, there have been few studies that explicitly investigate the possibility of distinct intraindividual longitudinal trajectories of victimization. A rare exception to this trend is found in a recent study by Higgins, Jennings, Tewksbury, and Gibson (2009), which reports evidence of three distinct adolescent victimization trajectories. In addition, they find that those trajectories appeared to be correlated with trajectories of an important explanatory variable in the criminological literature, low self-control (Higgins et al., 2009). Building on that analysis, the present study attempts to contribute to the limited empirical research on this topic by using a latent class modeling approach to analyze victimization trajectories across four waves of data from a panel of nearly 4,000 youth. Several specific objectives are pursued. First, the analysis seeks to determine whether there are classes of individuals who exhibit distinct longitudinal patterns of stability and/or change in victimization. If so, to what extent do these classes resemble those reported in the innovative Higgins et al. study? Furthermore, assuming that distinct victimization trajectories do emerge, a second objective is to examine the extent to which the victimization trajectory of the different latent classes corresponds with trends in a dimension of low self-control as well as several additional covariates of victimization, including self-reported delinquent behavior, delinquent-friend exposure, illicit opportunities, and school bonds.

VICTIMIZATION THEORY AND GROUP TRAJECTORIES

Although most prior victimization research is cross-sectional, there are theoretical arguments for expecting that criminal victimization may vary within individuals over time. Moreover, there also is good reason to suspect that within-individual variation in victimization
is not constant across individuals, but subgroups within the overall population may evince distinct longitudinal trajectories of victimization. For instance, stable victimization trajectories are suggested by theoretical perspectives promoting the idea that victimization is caused by underlying, relatively fixed characteristics that predispose individuals to consistently high (or low) levels of victimization.

Different characteristics have been identified as keys to understanding this underlying propensity, or “population heterogeneity,” with low self-control receiving the lion’s share of recent attention. A decade ago, Schreck (1999) borrowed from Gottfredson and Hirschi’s (1990) general theory of crime and put forth a compelling argument outlining why low self-control would affect victimization. Among other things, low self-control is associated with a penchant for risk taking, an antagonistic or temperamental nature, and limited mental attention and foresight. As such, motivated offenders may view individuals with low self-control as suitable, unguarded targets (Schreck, 1999; see also Finkelhor & Asdigian, 1996; Forde & Kennedy, 1997). A good deal of research has accumulated in support of the idea that low self-control is indeed positively correlated with victimization (Campbell Augustine, Wilcox, Ousey, & Clayton, 2002; Piquero, MacDonald, Dobrin, Daigle, & Cullen, 2005; Schreck, Stewart, & Fisher, 2006; Schreck, Wright, & Miller, 2002; Wilcox, Skubak Tillyer, & Fisher, 2009).

Evidence for the potential of self-control as a theoretically relevant influence on victimization also emerges from studies reporting that victims and offenders evince similar personal characteristics (Hindelang, 1976; Wolfgang, 1958) and others finding that individuals involved in criminal offending are also likely to be crime victims (e.g., Jensen & Brownfield, 1986; Lauritsen, Laub, & Sampson, 1992; Lauritsen, Sampson, & Laub, 1991; Luckenbill, 1977; Ousey et al., 2008; Schreck et al., 2002, 2006; Wilcox et al., 2009). A recent analysis of the victim-offender overlap in violent crime reports that although a small subset of individuals may exhibit a differentiation toward the victim or offender role, most individuals (with enough violence exposure to reliably measure role differentiation) take on both offender and victim roles in violent encounters (Schreck, Stewart, & Osgood, 2008). Given the noted dimensions of victim-offender overlap, it seems highly plausible that there may be distinct longitudinal patterns of criminal victimization, just as has been documented in longitudinal analyses of criminal offending, with low self-control serving to differentiate classes of offenders and victims.

Given that low self-control is often discussed as a time-stable trait, it would seem to follow that those with low self-control at certain points in time would be expected to continue to exhibit low self-control at later points in time, and therefore their victimization risk would also exhibit “high stability” when examined longitudinally. In contrast, individuals with (time-stable) higher self-control also would exhibit stability in victimization but at relatively low levels.

Beyond low self-control, other time-stable factors also may contribute to stable patterns of high or low levels of victimization over time for certain individuals. For instance, lifestyles and routine activities have been argued to be effectively stable, promoting continuity in opportunity for victimization over time (Wittebrood & Nieuwbeerta, 2000). Similarly, neighborhood-level exposure to risk can exhibit long-term stability, thereby promoting rather flat trajectories of victimization at both high and low levels (Menard & Huizinga, 2001). In short, there is a rationale for expecting relative continuity in victimization risk among a number of individuals over time, attributable to stability in correlates such as self-control, lifestyle, and neighborhood context.
On the other hand, it is certainly plausible that these and other correlates of victimization may change over time for at least some individuals, thereby creating “turning points,” or change, in trajectories of victimization. Indeed, although low self-control is often assumed to be a time-stable trait, some empirical evidence suggests that it (and related concepts, such as impulsivity) varies across time (Burt, Simons, & Simons, 2006; Hay & Forrest, 2006; Ousey & Wilcox, 2007), and this temporal variation has been found to predict change in victimization (Ousey et al., 2008). In addition, over-time variation in other salient explanatory variables has been demonstrated to affect change in victimization. For instance, in their analysis of National Youth Survey data, Lauritsen et al. (1991) found that change in delinquent lifestyle (a measure combining delinquent-peer association and respondent’s own delinquency) was positively associated with change in victimization. Subsequent analysis examined the elements of delinquent lifestyle separately and found that changes in delinquent peers and respondent’s own delinquency were significantly related to changes in victimization (Lauritsen & Davis Quinet, 1995). More recently, Ousey et al.’s (2008) analysis of data on adolescents from the Rural Substance Abuse and Violence Project (RSVP) revealed that within-individual changes in delinquent peers, delinquency, gang membership, and access to illicit opportunities at school were all positively related to variation in victimization over time. In contrast, a time-varying measure of school attachment was negatively related to longitudinal variation in victimization.

The limited work on average change in victimization and the average effects of key influences on such change is illuminating. Overall, however, such work pays little theoretical attention to the subject of distinct patterns or classes of longitudinal change in victimization and the correlates of such different trajectories, thus restricting the development of explicit expectations around the sort of analysis pursued here. Nonetheless, the limited previous research on victimization, in combination with results from prior studies of offending trajectories, offers some general insight into the groups that might emerge from such an analysis. So despite limited empirical evidence and a priori rationale for theoretically focused propositions regarding distinct intraindividual trajectories of victimization, we suggest, tentatively, that there are several possible general variations in the “development” of victimization that might be observed: (a) a stable pattern of low levels of victimization, (b) a stable pattern of high levels of victimization, (c) a trend indicating increasing levels of victimization over time, (d) a trend of declining victimization over time, and (e) a curvilinear trend whereby, for instance, initial increases (declines) in victimization are followed by subsequent declines (or increases). Moreover, extant theory and research raises the possibility that classification in these distinct victimization trajectory groups may correspond with the extent to which there is stability or change in salient explanatory variables, such as low self-control, association with delinquent peers, social bonds, and criminal opportunity, although the question as to which correlates would be most salient for which classes of victims remains unclear.

Although seemingly reasonable, there has been little attempt to empirically verify the existence of multiple distinct “pathways” of victimization, such as those posited above. As noted earlier, an important exception is found in a recent study by Higgins et al. (2009) that analyzes five waves of data on adolescents from the Gang Resistance Education and Training project. Their group-based trajectory analysis of victimization revealed that a three-class model provided the best fit to the data. The largest group, consisting of nearly 60% of their sample, exhibited almost no victimization during the course of the five time...
points. The second group, representing almost 40% of the sample, experienced slightly more than 3 victimizations at age 12 and then steadily declined over time, ending with fewer than 1 victimization incident at age 16. A final small group—just 1% of the sample—experienced approximately 3 victimization incidents at age 12 and then experienced a decline in victimization, with almost none reported at age 13. Unlike the second group, the victimization trajectory of the third group then moved slightly upward at age 14 and then more dramatically at ages 15 and 16. By age 16, individuals in this last group were experiencing more than 30 victimization incidents on average (Higgins et al., 2009).

Higgins et al. (2009) analyzed trajectories of self-control in addition to the trajectories of victimization described above. That analysis revealed five classes, all of which were characterized by stability over time, albeit at different levels. Importantly, these classes of self-control appeared correlated with the victimization classes. For example, respondents exhibiting (stable) higher levels of self-control were likely to appear in the victimization trajectory with virtually no victimization across all waves of data or in the victimization trajectory that started low and decreased to virtually no victimization by the end of the observation period. In contrast, respondents in the victimization class that exhibited change over time (specifically, a sharp increase by age 16) were characterized by lower levels of self-control, which again was relatively stable throughout the period of observation. Thus, in contrast to some of the research cited above, the results of the Higgins et al. study indicate that self-control is relatively stable but may still serve to distinguish membership in different victimization trajectory groups. It is worth noting that although the Higgins et al. research implies that self-control might be predictive of class membership, the fact that self-control is stable in their data suggests that it cannot explain any change that occurred within the observed classes (i.e., the trajectory that reported a sharp increase).

Apart from the Higgins et al. (2009) study, however, we have little empirical verification of distinct classes of intraindividual change in victimization. Furthermore, we have no empirical verification of how such trajectories correspond with within-individual over-time variation in theoretically derived correlates of victimization beyond Higgins et al.'s focus on self-control. We, therefore, attempt to paint a broader picture of how multiple, distinct individual trajectories of victimization relate to distinct longitudinal patterns of intra-individual stability or change in other key correlates of victimization. Our aim is to establish an empirical footing on which developmental theories of victim subgroups can be built.

THE PRESENT STUDY

To pursue the noted objectives, we use latent trajectory models to first assess the extent to which there are distinct patterns of “growth” in adolescent victimization across a 4-year time span. Next, we explore whether similar patterns of stability and/or change exist across the same 4-year time period in self-reported delinquency, impulsivity, delinquent-peer associations, illicit opportunities at school, and school attachment. Although this approach has rarely been used in the longitudinal study of victimization, there is now a fairly large literature applying these techniques to longitudinal data on crime and delinquency (Piquero, 2008). Again, given the noted victim-offender overlap, an application to patterns of victimization seems appropriate. Furthermore, although we suspect the trajectories will be related to patterns of stability and change in known correlates of victimization, we note that current victimization theory is rather silent on the precise nature of those relationships.
METHOD

DATA

This analysis uses all four waves of student survey data from the RSVP, funded by the National Institute of Drug Abuse (DA-11317). RSVP was a prospective longitudinal study conducted between the years 2001 and 2004. A major component of the study was an annual survey of a panel of students who were enrolled in seventh grade during the 2000-2001 academic year. The student panel was selected using a multistage procedure beginning with a stratified sampling of 30 of Kentucky’s 120 counties. Within the 30 selected counties, principals from all public schools containing seventh graders were contacted for inclusion in the study, with 65 of the 74 contacted schools agreeing to participate. A total of 9,488 seventh graders were contained within the 65 participating schools, and all were targeted for inclusion in the sample. Active parental consent was obtained for 4,102 of the targeted students, for a 43% response rate. Completed surveys were received from 3,692 students in Wave 1; 3,638 students in Wave 2; 3,050 students in Wave 3; and 3,040 students in Wave 4. Overall, there was participation from 3,976 students in one or more waves of the study.2

DEPENDENT VARIABLE

This analysis of the correspondence between classes of victimization trajectories and classes of trajectories of correlates of victimization is exploratory and not intended as a test of a specific causal model. Consequently, we do not have a dependent variable and independent variables in a strict sense of the terms. However, we hope that our findings are suggestive of ways to theorize about stable and dynamic effects of self-reported delinquency, self-control, delinquent-peer associations, illicit opportunities at school, and school bonding on trajectories of victimization. As such, the “outcome variable” of interest for the analysis presented below is self-reported victimization, measured by students’ responses to five survey questions asking them to indicate the number of times during the current school year that they experienced, on school grounds or during school-related activities, physical assault, robbery, theft without contact, threat involving a gun, and threat involving a weapon other than a gun. The response categories for each of the five victimization items ranged from 0 = none to 10 = 10 or more. Responses across all five types of victimization were summed for each student to create a victimization index (Cronbach’s $\alpha = .74, .72, .78, .79$ across waves).

CORRELATES OF SCHOOL-BASED VICTIMIZATION

Previous research suggests that the correlates of school-based victimization closely resemble the factors related to adolescent victimization more generally (i.e., beyond school settings). Consistent with the focus of this study, prior research indicates that victimization at school or in school-related activities is associated with delinquent behavior, impulsivity or low self-control, association with delinquent peers, illicit opportunities, and prosocial bonds (e.g., Campbell Augustine et al., 2002; Ousey et al., 2008; Schreck, Miller, & Gibson, 2003; Welsh, 2001; Wilcox et al., 2009). Consequently, we examine patterns of intraindividual stability and change in these characteristics and attempt to discern the extent to which these patterns correspond with the patterns of victimization trajectories.
Respondent’s own delinquency was measured by summing 13 survey items asking students to self-report how often in the current school year they committed acts such as robbery, theft, assault, carrying weapons to school, using weapons in fights, and vandalism (Cronbach’s $\alpha = .89, .90, .90, .91$ across waves). Response categories for each of the self-reported delinquency items ranged from 1 = never to 5 = daily or almost daily.

Impulsivity was measured in each year of the study as the sum of responses to 11 survey items assessing multiple dimensions of low self-control, including frustration, temper control, attention span, and restlessness (Cronbach’s $\alpha = .90, .90, .92, .92$ across waves). Each of the 11 items used a 4-point Likert-type response scale, with higher values representing greater impulsivity.

Delinquent peer associations was measured in all four waves with a 16-item composite score asking respondents whether their closest friends participated in a series of delinquent behaviors during the present school year (1 = yes, 0 = no). These behaviors included things such as drug and alcohol use, truancy, drunk driving, school suspension, carrying a weapon at school, being arrested, drug dealing, theft, assault, and vandalism. To calculate the respondents’ exposure to delinquent peers, the responses to these 16 dichotomous items were summed (Cronbach’s $\alpha = .91, .91, .89, .89$ across waves). Scores range from 0 to 16. Scores of 0 suggest that the respondent’s closest friends engaged in none of the delinquent behaviors listed, and scores of 16 indicate that the respondent’s friends engaged in all of the behaviors.

Beyond delinquency and delinquent peer associations, exposure to illicit opportunities for crime at school was measured by summing six items asking respondents to indicate whether they agreed that it would be easy for students at their school, on a typical day, to acquire things such as cigarettes, alcohol, drugs, or guns (Cronbach’s $\alpha = .89, .88, .85, .85$ across waves). Responses to each of the six items ranged from 1 = strongly disagree (i.e., low opportunity) to 4 = strongly agree (i.e., high opportunity).

Considering prosocial ties, we measured each respondent’s school bond with an index created by summing student responses across seven items that asked students about the extent to which they liked school, thought teachers cared, and felt education was important. Respondents’ answers to these items were originally scored on a 4-point Likert-type scale, and higher scores on the resulting index reflect higher levels of bonding (Cronbach’s $\alpha = .75, .75, .74, .73$ across waves).³

**ANALYSIS**

To assess variation in trends of victimization across the 4-year measurement window, we used group-based latent growth curve models (LCGA), estimated via Mplus 5.21. The LCGA estimates a model comprising latent subgroups on the basis of a belief that observed longitudinal response trends (e.g., self-reported victimization) can be explained by underlying categorical groupings of individuals (Muthén, 2004; Nagin, 1999, 2005). In other words, the LCGA depicts variation in developmental trends using a model characterized by some number of groups that are defined by unique growth curves (Muthén, 2004).⁴ Several models were specified with an increasing number of latent classes (Muthén & Muthén, 1998-2008). All models use a full-information maximum likelihood estimator for data missing at random to accommodate missing responses and attrition among participants (Schafer & Graham, 2002). Random starting values were used to avoid local maxima in the
estimation process \( n = 500 \). Because of the volume of \( \theta \) responses (approximately 25\% at each observation period), a censored outcome distribution was used.  

The model selection process employed several measures of fit and classification quality. First, the Bayesian information criterion (BIC) is based on the log-likelihood value of the fitted model adjusted for the number of estimated parameters (Brame, Nagin, & Wasserman, 2006; Nylund, Asparouhov, & Muthén, 2007). Lower values on information criteria suggest a better-fitting model. Next, the Lo-Mendell-Rubin (LMR) and bootstrapped likelihood ratio (BLR) tests compare the specified model to a “\( k - 1 \)” class version (e.g., four classes vs. three). Lower observed probability values associated with these tests indicate that the more limited model can be rejected in favor of the one with an additional class (Lo, Mendell, & Rubin, 2001; Nylund et al., 2007). The quality of classification that emerged from the probabilistic assignment of individuals to latent classes on the basis of model estimates and the observed response patterns was assessed first by the entropy value, which ranges between 0 and 1, with values approaching 1 suggestive of clearer placement of individuals into classes (Vermunt & Magidson, 2003). In addition, the agreement between predicted and actual classification was examined by reviewing the average overlap of the two in each of the latent classes (i.e., marginal values in classification table). Higher values suggest greater correspondence between the two.

The key estimates produced in LCGA are (a) latent class probabilities and (b) latent growth factors. Latent class probabilities reflect the number of extracted groups and their relative prevalence in the sample. These estimates provide a sense of the composition of the sample relative to the model. This model also estimates latent growth factors that draw on all observed time points, allowing individuals to have their own trajectories (i.e., intercept, slope), which are summarized by a sample mean and variance (Hancock & Lawrence, 2006; Singer & Willett, 2003). In the LCGA approach, subgroups have their own intercept (initial level) and slope (pattern of change over time) that are representative of their members. Individual cases are assigned to particular latent classes (on the basis of modal values) after a probabilistic consideration of where their growth factors suggest they belong. The group patterns are generally summarized visually, but the growth factors comprise the statistical estimates underlying those observed trajectories.

Following the estimation and assessment of the LCGA for victimization, we considered the longitudinal patterns of impulsivity, delinquent peer associations, delinquency, illicit opportunities, and school bonds in relation to the model-extracted latent classes. Although this approach does not provide formal estimates, it offers an opportunity to assess the consonance between the identified victimization trajectories and the longitudinal paths of key time-varying correlates (see Figure 1).

**RESULTS**

The results of the iterative modeling process are summarized in Table 1. The models were estimated with 3,698 cases. As described above, several fit measures were used in conjunction with theoretical considerations to arrive at the selected model. This initial phase of the process was used to identify a model that describes the basic longitudinal patterns of victimization in the sample. As shown in the table, multiple specifications of the
model demonstrate good fit. Ultimately, the four-class model was selected for reasons related to its overall fit, classification quality, and substantive properties.

The four-class model had a comparatively small BIC value, and the LMR and BLR tests both indicated that the four-class version was of good fit relative to the other specifications. In this case, the LMR (481.7, \( p = .01 \)) and BLR (501.2, \( p = .00 \)) values associated with the four-class specification indicate that the three-class model can be rejected. Furthermore, the test values associated with the five-class specification are less consistent with respect to that question, as one of the two suggests rejection of the four-class specification and the other does not.

Information pertaining to the quality of classification is also relevant in making choices from among the four specifications. In this case, the four-class model is quite comparable to the three-class version in terms of its entropy (0.84 vs. 0.85) as well as the marginal values for each cell in the classification table (0.80 to 0.93 vs. 0.83 to 0.95, respectively). This indicates that the addition of the extra class does not do much to confuse the probabilistic placement of sampled youth into latent classes. Also, comparing the four- and five-class

<table>
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<th>Class</th>
<th>BIC</th>
<th>LMR (p)</th>
<th>BLR (p)</th>
<th>Entropy</th>
<th>Marginal Values in Classification Table</th>
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<td>.89</td>
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<td>68046.06</td>
<td>481.7 (.01)</td>
<td>501.2 (.00)</td>
<td>.84</td>
<td>.80, .92, .93, .92</td>
</tr>
<tr>
<td>5</td>
<td>67821.30</td>
<td>239.7 (.34)</td>
<td>294.4 (.00)</td>
<td>.72</td>
<td>.94, .76, .86, .80, .92</td>
</tr>
</tbody>
</table>

Note. BIC = Bayesian information criterion; LMR = Lo-Mendell-Rubin test; BLR = bootstrapped likelihood ratio.
specifications reveals that the four-class model is superior with respect to quality of classification. In the case of entropy, there is a sharp drop, to a value of 0.72, associated with the addition of the fifth latent class. The added class also seems to add some confusion to the process of placing individuals into groups. This is exemplified by the marginal value for the second class (0.76), which indicates a relative lack of correspondence between the information in the estimated model and that supplied in the observed data.

Figure 2 presents the descriptive patterns of victimization for each of the four latent classes according to the model described above. Class 1, which demonstrates a moderate, declining victimization trajectory, comprises roughly 16% of the sample. This group starts with a victimization score of about 14 at baseline, and its level of victimization gradually declines until it reaches 10.4 at the third follow-up. Class 2 makes up a relatively small proportion of the overall sample (2.2%). These youth start with high levels of victimization (43 at baseline), which then drop off sharply across the observation window before reaching a victimization score nearer to that of Class 1 (moderate victimization) at the last follow-up point (10). This trajectory group is defined by a high initial intercept and large negative slope.

The majority of youth in the sample were placed in Class 3 (80%). As might be expected in a school-based, general population sample, youth in this class experience relatively low levels of victimization at all four measurement periods. Although these youth did experience some victimization, it amounted to scores only between 2 and 3.5 across the 4 years captured here. Like Classes 1 and 2, Class 3 also showed a downward trend. Unlike the other three classes, Class 4, which comprised 2% of the sample, exhibited a decidedly upward trend through the end of the observation period. These youth had baseline scores comparable to the low victimization class just described but experienced increasing levels of victimization as they moved through adolescence. They quickly surpassed the level of victimization experienced by the moderate victimization group (Class 1) and eventually finished at a high victimization peak at Wave 3 (score of 43), equaling the level of victimization experienced by Class 2 (high initial victimization followed by sharp decline) in the process.
With these victimization trajectories established, we next considered the prevalence of certain demographic characteristics for each of the trajectory groups. With regard to gender, Classes 2 and 4 contain relatively greater proportions of males. Specifically, in Class 2, the male prevalence was 81%, and in Class 4, it was 83%. Females have relatively greater representation in Class 3, where they make up 55% of cases. This class was characterized by youth with low, steady victimization during the measurement period. Males and females are similarly represented in Class 1 (49% males). The White/non-White racial distribution across the four classes reveals that there are relatively greater proportions of non-Whites in the second and fourth classes. Specifically, non-Whites make up roughly 20% of each of those two classes. These classes have decreasing and increasing victimization patterns, respectively. White youth have relatively greater representation in Class 3 (90%), which has a low, stable victimization trajectory. The racial composition is similar in Class 1 (88% Whites).

To gain a more comprehensive view of the extent to which victimization trajectories correspond with theory-derived crime correlates, we next examined the relative longitudinal patterns of self-reported delinquency, impulsivity, delinquent-peer association, illicit opportunities, and school bonding. The results are shown in the various plots in Figures 3 through 7. Figure 2 is used as a comparator for these correlate trends.

**DELINQUENT OFFENDING AND VICTIMIZATION**

Some theoretical arguments suggest that victimization is influenced by the extent to which a person engages in a risky lifestyle, which includes involvement in criminal offending. With that logic in mind, we could surmise that over time, victimization trajectories will mimic longitudinal variation in delinquent offending. To examine that idea, Figure 3 shows the trajectory patterns for self-reported offending. Although scaled differently, it is evident that in the RSVP data, the patterns of self-reported delinquency for cases in each of the model-extracted victimization classes showed a fairly close correspondence with the observed trajectories of victimization. The only minor difference is indicated by greater stability in offending from Wave 2 and Wave 3 among those individuals in the declining victimization classes (Classes 1 through 3).

**IMPULSIVITY AND VICTIMIZATION**

It has been argued previously that victimization risk may be higher for individuals characterized by low self-control or other individual traits. To explore this notion, we next plot out the longitudinal trajectories of impulsivity for each of the victimization classes identified by our LCGA (Figure 4). Although there is greater stability in impulsivity across Classes 1 through 3, longitudinal patterns of that variable generally track the victimization trajectories of the classes. Yet there appears to be somewhat less overlap in the longitudinal trends of the two classes that exhibit the sharpest change (decrease or increase) in victimization (Classes 2 and 4) than in the more “stable” victimization trajectory classes (Classes 1 and 3).

**DELINQUENT FRIENDS AND VICTIMIZATION**

If associating with delinquent friends exposes an individual to the risk of victimization, it could be expected that longitudinal trajectories of delinquent-friend association should correspond directly with victimization patterns. Figure 5 considers that idea. Interestingly,
with the exception of Class 2, which comprises 2% of the sample, all study youth tend to report increases in exposure to delinquent friends across the measurement periods. Consequently, the greatest correspondence in the longitudinal patterns of victimization and delinquent friends appears to exist for Classes 2 and 4. In the case of the former, there appears to be a general downward trend in both victimization and delinquent friends across the observation points. Meanwhile, in the case of the latter, both trajectories evince an increase over time. In contrast, the average growth patterns in exposure to delinquent friends and victimization are somewhat decoupled for Classes 1 and 3 (96% of the sample), with these groups showing small decreases in victimization and modest increases in association with delinquent friends across the four measurement points.
ILLICIT OPPORTUNITIES AND VICTIMIZATION

Figure 6 allows us to explore the correspondence between longitudinal patterns of victimization and exposure to illicit opportunities for the youth in each of the victimization classes. Overall, the descriptive results for illicit opportunities are somewhat similar to those just described for exposure to delinquent peers. Specifically, youth in Classes 1 and 3 demonstrate less stability in exposure to illicit opportunities than is evident in their victimization trends. Although victimization declined slightly for youth in Classes 1 and 3, those groups tended to exhibit somewhat increasing exposure to illicit opportunities over time. The increasing trend in illicit opportunities roughly mirrored the observed escalation of victimization in Class 4, albeit in a less pronounced manner. Although their exposure to illicit opportunities declined slightly over time, those youth in Class 2 saw more precipitous downward trends in their victimization levels over time.

SCHOOL BONDS AND VICTIMIZATION

Finally, Figure 7 indicates that there was relative stability in school bonds across all four latent victimization classes. Youth in the stable, low, and moderate victimization classes (1 and 3) had relatively higher levels of school bonds across the 4-year observation period compared to those youth who exhibited the high, declining victimization trajectory or the sharply escalating victimization trajectory (Class 2 and Class 4, respectively). In addition, a closer inspection of youth in the two less stable classes suggests that trends in school bonds tended to work opposite of the victimization trends, which is consistent with the notion that conventional social ties may lead to protective (guardianship) effects in regard to victimization. In Class 2, which has a declining trend in victimization, youth reported slight increases in their bonding to school across the measurement window. The shift in school bonds appears smaller than that identified in the victimization trend for that class, however. Also in accord with the idea that bonds may yield protective effects, Class 4,
which exhibits an escalating victimization trajectory, shows a modest downward trend in school bonding across the four time periods studied here.

**DISCUSSION**

Using longitudinal data from a four-wave panel study of nearly 4,000 adolescents, we examined the extent to which there is evidence of multiple distinct trajectories of victimization and whether they resemble those reported in Higgins et al. (2009). We also considered the extent to which the longitudinal patterns of variation in theory-derived covariates visually correspond with growth in victimization for the latent classes identified in our data.
More specifically, we explored the degree to which trends in victimization for the identified latent classes correspond with within-individual variation in measures of impulsivity, self-reported offending, impulsivity, delinquent friends, illicit opportunities, and school bonds.

Overall, our analyses suggest that individuals may be placed into one of four latent victimization groups. Two of these trajectories appear relatively stable, being characterized by modest over-time decreases. In contrast, the other two exhibit considerable temporal variability, although their average growth trends move in opposite directions. Focusing first on the more stable (or gradually declining) victimization classes, two main findings stand out. The first is that these two groups are by far the largest, collectively comprising approximately 96% of the sample. A second finding is that these classes are distinguished largely by their differing levels of victimization, although their growth trends across time are quite similar. Turning to the other two classes, it seems apparent that distinctions are based on differences in average levels of victimization as well as by fundamentally different trajectory patterns. Specifically, whereas one group starts at quite low levels of victimization and increases markedly across time, the other group starts at very high levels and declines steadily across the measurement periods.

Given that our analysis attempts, in part, to build on the recent study by Higgins and colleagues (2009), it is instructive to consider more directly how our findings regarding victimization trajectories compare with theirs. Viewed in a general way, our findings appear to exhibit some notable similarities and differences. Beginning with the similarities, both analyses reveal two latent classes that comprise the vast majority of all observed individuals. In addition, it appears that in both studies, the very largest groups are composed of individuals for whom victimization is a fairly rare event on all measurement occasions. A third likeness between the studies is that there is a very small group for whom initially fairly low levels of victimization escalate dramatically across time.6

In terms of differences, at least two seem readily apparent. First, we note that the second (and smaller) of the two large groups in our study experiences what may best be described as a moderate level of victimization, whereas the second large group in the Higgins et al. (2009) study appears to experience fairly low levels of victimization, particularly in the later measurement periods. Second, and perhaps more importantly, our models revealed a small but substantively interesting fourth class with initially very high levels of victimization that steadily decline across time. In contrast, the results reported by Higgins et al. do not evince this “high-declining” victimization class.7

Moving beyond the simple description of the victimization classes to our consideration of longitudinal trends in covariates, our study suggests several important results. First, it seems apparent from our visual inspections that for the most part, variation in the average levels of the covariates correspond as expected (i.e., consistent with the logic of major theories) with the average levels of victimization for the classes identified in the LCGA. For instance, the latent classes with the higher average victimization levels appear to exhibit higher levels on measures of self-reported offending, impulsivity, delinquent friends, and illicit opportunities but lower levels of school bonds.

There also appears to be considerable—although certainly not complete—consistency with theory when we examine the correspondence between change in victimization and change in covariates for the latent classes. In particular, for the two very small classes (Class 2 and Class 4), which demonstrate the most instability in victimization, the change over time in the covariates generally is in expected directions. For example, the sharp
decline in victimization exhibited by Class 2 is accompanied by general over-time decreases in self-reported offending, impulsivity, delinquent friends, and illicit opportunities and a general upward trend in school bonds. In contrast, the rapid upward ascent in victimization experiences for Class 4 accords well with a general upward trend in offending, impulsivity, delinquent friends, and illicit opportunities and a downward trend in school bonds. Interestingly, the evidence is less consistent with expectations when we consider the correspondence between longitudinal patterns of victimization and trends in certain correlates for the larger two latent classes (Classes 1 and 3). Specifically, although both of these classes exhibit gradually declining victimization levels, the measures of delinquent friends and illicit opportunities both show slight to moderate increases across the four measurement points.

We believe our results have important implications for the continuing evolution of longitudinal research on criminal victimization. For example, our findings appear to add another dimension to the literature on the victim-offender overlap by supporting the view that intraindividual patterns of criminal victimization and offending correspond quite closely for the groups defined in our analysis. In addition, our findings give support to the idea that individuals can be characterized by a systematic longitudinal pattern of criminal victimization; but they also highlight the fact that there is not one master pattern that describes everyone’s experience. Rather, our study suggests that although most people experience fairly low and relatively steady levels of victimization, there is a noteworthy minority of individuals who deviate from the norm in terms of their average level and rate of temporal change in victimization. From a descriptive standpoint, these findings certainly seem to suggest it may be limiting to portray criminal victimization in a population by single summary measures of level and rate of growth.

Beyond the descriptive lens, however, the revelation of multiple distinct latent victimization classes seems to have the most value if it is determined that those classes are distinct beyond their experiences with victimization. In other words, these classes gain substantive significance if we find that the factors that explain variation in victimization differ between them. Although our methods are largely descriptive and therefore provide no firm evidence on that issue, they are suggestive of the possibility that temporal variation in some theory-derived covariates (e.g., delinquent friends, illicit opportunities) may correlate in different ways with within-individual changes in criminal victimization. We suspect that this issue of differential effects will become more prominent in future research, just as general versus specific explanations have become flashpoints for research on criminal offending.

Finally, we note that our study has a number of limitations, which also provide directions for subsequent research to pursue. The RSVP data provide a relatively rare opportunity to observe intraindividual change in victimization alongside changes in a host of potential correlates across four waves. Despite its unique appeal, the data are not without drawbacks. As noted previously, active parental consent procedures resulted in a disappointing response rate, thus raising concerns about potential sample bias. Further compounding concerns of sample bias is the participant attrition that occurred between Waves 1 and 4. These data limitations have been addressed in a general sense elsewhere (see, e.g., Ousey et al., 2008; Wilcox et al., 2009), but it is worth delineating how the potential sample bias affects the current study specifically. Seemingly the most obvious implication of nonresponse and sample attrition for this study is the possible distortion of observed classes, especially classes of victimization, if students experiencing victimization are more likely to drop out
of the study (Wilcox et al., 2009). Given sample limitations, we urge further latent class analyses of adolescent victimization (and its correlates) using other data sources so as to gain a better sense of whether the trajectories observed here are generalizable. Additionally, although the school-based measures analyzed here address a number of areas where youth might be expected to be victimized (i.e., they possess content validity), there are other items that might be drawn into future research on trajectories of victimization (e.g., bullying or teasing, cyberbullying, sexual victimization). These longitudinal trends might also be modeled jointly in the future to gain more insight on how the evolution of these problems formally relate to one another (e.g., offending and victimization, illicit opportunities and victimization).

As these methods synthesize information collected from individuals over time, such findings (if used appropriately) can offer insights that will be useful to those who wish to curtail adolescent victimization and other problems that emerge at that developmental stage. At the same time, our findings must be viewed in the context of the analytic strategy used here. Although we carry over the advantages of trajectory models in studying individual offending trends to our focus on victimization, we also absorb the limitations and questions that have been raised in that literature. Recent analysis of this modeling approach has offered divergent views about its statistical properties as well as the substantive boundaries of its results (e.g., Kreuter & Muthén, 2008; Nagin & Tremblay, 2005a, 2005b; Raudenbush, 2005; Sampson & Laub, 2005a, 2005b). Chief among these concerns is the reification of groups extracted from a statistical model applied to a single data set. Although we use this approach to identify clusters of cases with similar properties, the probabilistic nature of assignment to groups must be kept in mind when reaching conclusions about their meaning for theory and policy.8

In this case, given that this is an initial foray into this area using this technique, further research should be undertaken to determine the predictive validity and generalizability of the victim groupings identified here. Limitations notwithstanding, we believe this research has established the value of considering differing longitudinal patterns of victimization and suggest further inquiry focused on verifying and better understanding these various trajectory patterns. Although the analysis undertaken here was not intended to formally assess any particular theoretical view(s), its consistency with key propositions of extant explanations suggests that it provides a sound, empirically grounded classification structure with respect to adolescent victimization. These findings certainly require replication, but this work (see also Higgins et al., 2009) provides building blocks for further theoretical development in this area.

NOTES

1. The curvilinear possibility could include a number of other patterns not specifically mentioned (i.e., initially stable trajectories that subsequently exhibit either increases or declines) or, alternatively, trajectories that are initially increasing (decreasing) but then later exhibit stabilization.
2. For more details about sampling and attrition, see Ousey, Wilcox, and Brummel (2008).
3. Although not presented here, we also explored two other measures of prosocial ties, including maternal bond and attachment to peers. Additional information on these analyses is available from the authors by request.
4. Muthén (2004; see also Kreuter & Muthén, 2008) discusses a second approach to group-based trajectory modeling, the growth mixture model. Whereas the latent growth curve models (LCGA) approach used here makes a zero-variance assumption within trajectory groups, that specification allows for within-class variation. We use the LCGA approach as that is typically used in the study of trajectories of criminal behavior.
5. A continuous, ordinary least squares–based specification was also considered. Comparatively, there was a closer correspondence between estimated and observed curves for the censored outcome approach than the ordinary least squares model. Results are available from the first author by request.

6. The patterns of escalation differ somewhat. Whereas the escalating group in our analysis exhibits a somewhat steady upward march across measurement occasions, the escalating group in their study shows a decrease in victimization in the earliest two periods, followed by a growing rate of increase across subsequent measurement points.

7. Two anonymous reviewers observed that the differences between this analysis and that of Higgins, Jennings, Tewksbury, and Gibson (2009) may have been attributable to the inclusion of a theft item in the general victimization measure modeled here (as opposed to that study’s focus on violent victimization). Findings from supplementary analysis suggest that there were no structural differences in the results attributable to inclusion of the theft item. Further details of these analyses are available from the authors by request.

8. Bauer and Curran (2003) raise technical concerns regarding distributional assumptions and the potential “overextraction” of latent classes (i.e., model returns more groups than necessary in reality or returns artifactual groups) in group-based, latent growth models. Although this problem is somewhat inherent to the method, which highlights the need for replication of findings, three practices were used to guard against this concern. Specifically, (a) the model specification accounted for the non-normal nature of the outcome variable, (b) several fit and classification quality measures were used in selecting groups (see Table 1), and (c) substantive boundaries were used to ensure that the extracted groups did not roam too far from what could be expected, given previous theory and research on victimization.

REFERENCES


Christopher J. Sullivan is an assistant professor in the School of Criminal Justice at the University of Cincinnati. He received his doctorate at the Rutgers University School of Criminal Justice in 2005. His research interests include developmental criminology, juvenile delinquency and prevention policy, and research methodology and analytic methods. His recent work has appeared in Prevention Science, Journal of Research in Crime and Delinquency, Journal of Youth and Adolescence, Journal of Quantitative Criminology, and British Journal of Criminology.

Pamela Wilcox is a professor in the School of Criminal Justice at the University of Cincinnati. She received her PhD (1994) in sociology from Duke University. Her research is aimed at understanding crime and victimization events, with an emphasis on criminal opportunity structures at multiple levels of analysis. She is a coauthor of Criminal Circumstance: A Dynamic, Multicontextual Criminal Opportunity Theory (2003). Recent articles have appeared in journals such as Criminology, Journal of Research in Crime and Delinquency, Journal of Quantitative Criminology, Justice Quarterly, and Journal of Criminal Justice.

Graham C. Ousey is an Arts and Sciences Distinguished Professor of Sociology at the College of William and Mary. He received his PhD in sociology from Louisiana State University in 1997. His research interests include the social ecology of crime, life-course criminology, and explanations of variation in punitive outcomes. His recent research appears in Criminology, Social Problems, Journal of Quantitative Criminology, Journal of Research in Crime and Delinquency, and Justice Quarterly.