JUSTICE QUARTERLY VOLUME 25 NUMBER 4 (DECEMBER 2008)

It's 3 p.m. Do You Know Where Your Child Is? A Study on the Timing of Juvenile Victimization and Delinquency

Dave Soulé, Denise Gottfredson and Erin Bauer

In recent years, afterschool programs have received support for their potential to reduce juvenile delinquency and victimization. This support stems largely from reports based on police incident data indicating that juvenile crime and victimization peak during the afterschool hours. However, prior studies of victimization surveys and self-reports of crime suggest that delinquency is more elevated during school hours. Utilizing self-report data from a sample of juveniles participating in an evaluation of afterschool programs in Maryland, this study shows that juvenile victimization and delinquency peak during the school hours, while substance use peaks during the weekend. Disaggregating by offense reveals, however, that the more serious violent offenses are elevated during the afterschool hours, while simple assault offenses are most elevated during school hours. Implications for research and practice are discussed.

Keywords afterschool; timing of delinquency; timing of victimization

David A. Soulé is the Executive Director of the Maryland State Commission on Criminal Sentencing Policy and an adjunct instructor at the University of Maryland. His research interests include sentencing, delinquency prevention, and program evaluation. He earned his PhD in Criminology and Criminal Justice from the University of Maryland in 2003. Denise C. Gottfredson is a Professor at the University of Maryland Department of Criminal Justice and Criminology. She received a PhD in Social Relations from The Johns Hopkins University, where she specialized in Sociology of Education. D. Gottfredson's research interests include delinquency and delinquency prevention, and particularly the effects of school environments on youth behavior. Gottfredson has recently completed randomized experiments to test the effectiveness of the Baltimore City Drug Treatment Court and the Strengthening Families Program in Washington, DC. She is currently directing a randomized trial of the effects of afterschool programs on the development of problem behavior. Erin L. Bauer completed her Master of Arts degree in Criminology and Criminal Justice at the University of Maryland, College Park, in 2006. Her research interests include the routine activity approach and juvenile delinquency. Correspondence to: David A. Soulé, Maryland State Commission on Criminal Sentencing Policy, University of Maryland, 4511 Knox Road, Suite 309, College Park, MD20742, USA. Email: dsoule@crim.umd.edu

ISSN 0741-8825 print/1745-9109 online/08/040623-24

DOI: 10.1080/07418820801930126

Routledge
Taylor & Francis Group

Research suggesting that juvenile crime peaks during the afterschool hours has been instrumental in generating substantial support for afterschool programs. Most of this evidence comes from official sources of data on law enforcement responses to juvenile crime. At the same time, national victimization surveys and studies based on self-reports suggest that juvenile crime and victimization are elevated during the school day. This apparent discrepancy might be due to different types of crime being committed at different times. This report seeks to clarify our understanding of the timing of juvenile crime and victimization by examining this relationship according to offense type. Specifically, we use self-report data from the Maryland After School Opportunity Fund Program (MASOFP) evaluation collected during the 2002-2003 academic year to examine the timing of juvenile victimization, delinquency, and substance use. We expect to find that the crimes that are elevated during the school day are less serious in nature than those that occur during the afterschool hours, and therefore less likely to come to the attention of official law enforcement agencies.

Previous Research on the Timing of Juvenile Victimization and Delinquency

More than 60 years ago, Kvaraceus (1945) examined New Jersey juvenile court referrals and concluded juvenile crime was more likely to occur on weekdays than on weekends and that it peaked during the afterschool hours. A half-century later, Snyder, Sickmund, and Poe-Yamagata (1996) examined the proportion of violent crimes (i.e., violent sexual assault, robbery, aggravated assault, and simple assault) reported to law enforcement agencies throughout the day using the 1991 and 1992 National Incident Based Reporting System (NIBRS) data from South Carolina. They found a higher percentage of violent crimes (22 percent versus 17 percent) occurred between 2 p.m. and 6 p.m. on weekdays than between 10 p.m. and 6 a.m. on weekdays or between midnight and 6 a.m. on weekends.

The authors replicated this study with a larger sample of NIBRS data (Sickmund, Snyder, & Poe-Yamagata, 1997; Snyder & Sickmund 1999, 2006). Their most recent analysis included information from 20 states and the District of Columbia (Snyder & Sickmund, 2006). Snyder and Sickmund (2006) found juvenile violent crime (i.e., murder, violent sexual assault, robbery, aggravated assault, and simple assault) peaked at 3 p.m. on school days, but no similar peak emerged for juvenile violent crime on nonschool days. Violent crimes involving juvenile victims also peaked between 3 p.m. and 4 p.m. on school days but not on nonschool days. Snyder and Sickmund (2006) also examined the timing of one property offense, shoplifting, and drug law violations among juvenile offenders. They found for both male and female juvenile offenders, shoplifting peaked between 3 p.m. and 6 p.m. on both school and nonschool days and drug law violations peaked during the school hours and during the late evening hours on both school and nonschool days. These findings, particularly those on the timing

of violent delinquency and victimization, had a substantial influence on policymakers and helped contribute to the increase in public support for afterschool programs as a crime prevention tool.

Research has also focused on juvenile crime that occurs during the school day (Chandler, Chapman, Rand, & Taylor, 1998; Dinkes, Cataldi, Kena, & Baum, 2006; Gottfredson, 2001; United States Department of Education, National Center for Education Statistics, 2002). This research shows that the amount of victimization and crime experienced in schools by school-aged youth is disproportionately higher when compared to the amount of time juveniles spend in school. Gottfredson (2001) estimated that students spend 18 percent of their waking hours in schools. However, an examination of the 2004 National Crime Victimization Survey (NCVS) data reveals that 66 percent of all crimes and 42 percent of serious, violent crimes among juveniles 12-14 years old occurred at school and on the way to and from school (Dinkes et al., 2006). For youth 15-18 years, 43 percent of all crimes and 23 percent of serious violent crimes occurred at school and on the way to and from school (Dinkes et al.).[1] This suggests juveniles are disproportionately victimized while at school relative to the percentage of time they spend at school.

Jacob and Lefgren (2003) examined the effect of school attendance on juvenile crime using NIBRS data from 1999. They found that on days in which school was in session, violent crimes committed by juveniles increased by 28 percent compared to days when school was not in session due to teacher in-service days. Alternatively, property crimes decreased by 14 percent on days when school was in session relative to teacher in-service days. These results were supported in additional analysis that compared violent crime and property crime on school days and idiosyncratic breaks (i.e., school breaks that are not related to holidays and are variable across school districts). Jacob and Lefgren (2003) attributed the decrease in property crimes to the monitoring of youth by adults during school and the structure of activities. Alternatively, they argued violent crime increased on school days due to the greater amount of interaction between juveniles on school days, thereby increasing the potential for violent conflicts. This study was one of the first to suggest that the timing of juvenile crime may vary by crime type.

A substantial amount of literature has also addressed the problem of bullying in schools, which Sampson (2004) argues is "widespread and perhaps the most underreported safety problem on American school campuses" (p. 1). Bullying occurs more frequently during the school hours than on the way to or from school (Sampson, 2004). The reported prevalence of bullying varies greatly depending on the definition used and the reference period for bullying measures (Farrington, 1993; Sampson, 2004). According to the 2005 NCVS data, 28 percent

1. Figures from the 2004 National Crime Victimization Survey calculated from raw numbers provided in tables 2.2 and 2.3 of Dinkes et al. (2006). Serious violent crime includes rape, sexual assault, robbery, and aggravated assault. Violent crime includes serious violent crime and simple assault. Total crime includes violent crime and theft. "At school" refers to on the way to or from school, as well as during the school day.

of students between the ages of 12 and 18 reported being bullied at school during the last 6 months (Dinkes et al., 2006). Thus, bullying, which generally involves aggression against other persons, is also a significant problem that youth experience while at school.

Are juvenile delinquency and victimization more prevalent during school or after school? There are several potential explanations for the apparent discrepancy in previous research in the timing of these criminal activities. First, studies relying on different data sources have come to different conclusions. Studies finding elevated crime during the afterschool hours have tended to rely on official police data (such as NIBRS), while studies finding elevated crime during school hours have relied primarily of victimization surveys. Differences in the findings, then, may reflect differences in responses to youth behaviors. It may be that police are more likely to arrest juveniles during the afterschool hours, resulting in the observed peak in juvenile crime. It is also likely that juvenile crime and victimization that occurs during the school day is likely to be underreported in official records because many criminal events occurring at school are handled directly by school personnel rather than official criminal justice agents. In a review of the National Crime Survey (NCS) narratives, Garofalo, Siegel, and Laub (1987) found the number of school related victimizations reported to school personnel exceeded those reported to police by a ratio of 100 to 68. Whitaker and Bastian (1991) found that only nine percent of violent crimes against juveniles that occurred in school were reported to police, compared to 37 percent of those that occurred on the street. Finally, in a review of the 1995-1996 NCVS data, Finkelhor and Ormrod (1999) noted that school victimizations of juveniles were less likely to be reported to police than nonschool victimizations.

In an earlier study aimed at understanding the timing of delinquency, Gottfredson, Gottfredson, and Weisman (2001) used youth self-reports from both the National Study of Delinquency Prevention in Schools (NSDPS; Gottfredson, Gottfredson, & Czeh, 2000) and a sample of youths participating in Maryland After School Community Grant Programs (MASCGP) to examine the timing of delinquency (violent and property) and drug use. They found the observed peak in juvenile crime during the afterschool hours was more modest than the peak observed in the NIBRS data. In addition, the MASCGP data revealed that juvenile crime was actually the most elevated in the period before school began, after the data was standardized to control for the number of hours in each time period (Gottfredson et al., 2001). The authors concluded that the previously reported peak in juvenile crime during the afterschool hours was likely, in part, an artifact of the reliance on official records. However, the study aggregated all crime types and was therefore unable to explore possible differences in the timing of delinquency by crime type. It also did not examine the timing of juvenile victimization experiences.

Relatively unexplored in prior research is the possibility that different types of delinquency are committed during school versus after school. If more serious crimes are committed during the afterschool hours than during the

school day, it would not be surprising to see elevated official reports during the afterschool hours, as the more serious crimes would tend to come to the attention of law enforcement agencies. Most of the research summarized above did not disaggregate the timing of juvenile offending and victimization by offense type. Snyder and Sickmund (2006) extended their prior work that had been limited to violent crime by adding one type of property offending (shoplifting), and a general category of drug law violations. They noted different patterns of crime for different crime types. Other researchers have suggested that a closer examination of timing by crime type may be necessary (Garofalo et al., 1987; Gottfredson & Gottfredson, 1985).

Gottfredson and Soulé (2005) examined the timing of the categories of juvenile property crime, violent crime, and substance use using data from a subsequent year from the afterschool programs reported in Gottfredson et al. (2001). They found crimes against persons (violent) were elevated during the afterschool hours, but not as much as during and before school. Neither property offenses nor substance use were particularly elevated during the afterschool hours. This study, although limited by its reliance on a small number of self reported offenses, underscored the importance of disaggregating by offense type when examining the timing of juvenile crime. This study did not examine the timing of juvenile victimization experiences.

Research regarding the timing of juvenile substance use is less abundant than the research regarding the timing of juvenile delinquency and victimization. Gottfredson and Soulé (2005) noted the MASCGP sample reported the highest level of substance use during the weekend. Additionally, recent data collected from 109,919 sixth through twelve graders who participated in the national 2002-2003 PRIDE Survey indicated that juveniles were most likely to use illegal substances, including alcohol, during the weekend hours (PRIDE, 2003).

Theoretical Framework

This research, although primarily policy-oriented, is guided by a lifestyles/routine activities theoretical framework. Lifestyle theories of crime victimization presume that some common activities of young people, such as staying out late, drinking, and using drugs are more likely to place them in situations where the possibilities for victimization and delinquency are increased (Hindelang, Gottfredson, & Garofalo, 1978). Similarly, the routine activities approach suggests that crime is more likely when a suitable target is available, when a capable guardian is absent, and when a motivated offender is present (Cohen & Felson, 1979). Thus, common lifestyles or "routine activities" shape criminal opportunities because areas with high crime rates are expected to be relatively unguarded locations where suitable targets and motivated offenders routinely interact. Different times of the day are likely to provide different levels of access to suitable targets as well as different levels of guardianship. Similarly, these routine activity variables are likely to differ by crime type. For example,

as noted in our discussion of Jacob and Lefgren (2003), proximity to large numbers of other adolescents during the school day is expected to increase the likelihood that altercations will occur. By examining the prevalence of crime across different times of the day and according to crime type, we can begin to understand how the routine activities of adolescents shape their crime and victimization experiences.

Current Study

This study seeks to advance our understanding of the timing of juvenile problem behavior by addressing some of the limitations of previous research. First, this study relies on self-report data with more precise timing measures than have been used in prior studies.[2] Second, it provides a more detailed analysis of the timing of different types of delinquency by reporting not only for categories of crime (i.e., violent, property, and substance use) but also for individual offense types within each category that differ in the level of seriousness. Third, it examines the timing of juvenile victimizations as well as their offenses. This study addresses two primary research questions. First, when juvenile victimization, delinquency, and substance use behaviors are measured with more precise time measures using self-report data, are these behaviors more likely to occur during the afterschool hours as suggested by previous research? Second, does the timing of victimization, delinquency, and substance use vary according to specific offense types or specific individual offenses?

Methods

Sample

The data used in this study are from an evaluation of the Maryland After School Opportunity Fund Program (MASOFP), which was created by the Maryland After School Opportunity Act (HB6) in 1999 in response to a growing interest in reducing the number of hours youth spend unsupervised during the afterschool hours (Maryland After School Opportunity Fund Program, 1999). In August 2001, the University of Maryland was contracted to evaluate the services provided by the MASOFP-funded programs. The MASOFP initiative supported services for 258 afterschool programs throughout the state during the 2002–2003 school year.

2. For example, the NCVS asked respondents to estimate the time an event occurred in one of four time periods (6 a.m. to noon, noon to 6 p.m., 6 p.m. to midnight, and midnight to 6 a.m.). This format is problematic because the first two periods overlap the time when juveniles are expected to be in school and therefore fail to provide an accurate description of in-school versus out-of-school crime. Recently, the NCVS School Crime Supplement (SCS) has adapted more precise time intervals (6 a.m. to noon, noon to 3 p.m., 3 p.m. to 6 p.m., 6 p.m. to 9 p.m., and 9 p.m. to midnight). However, they are referenced only for those victimizations occurring at school and therefore do not provide information about out-of-school victimizations (United States Department of Education, 2002).

A subset of these afterschool programs was selected for an outcome evaluation. Gottfredson, Cross, and Soulé (2007) describe the process by which the more stable programs were selected for the evaluation. This study employs data from the 37 programs included in the outcome evaluation that served youth in grades 6 through 12.[3] All program participants were recruited for participation in the outcome evaluation. In addition, 10 of the 37 programs voluntarily recruited a sample of comparison youth who did not regularly participate in an afterschool program. The youth in the comparison group were expected to be matched to the MASOFP participants based on demographic characteristics. In most cases, the comparison group consisted of youth who attended the same school as the MASOFP participants but did not attend the afterschool program.

The sample used in this study includes all evaluation participants, including youth in the comparison group, from the 37 afterschool programs. The comparison group youths are included in the sample only to increase the sample size. The distinction between program participants and comparison youths is irrelevant to this study because the analysis is based on pretest responses to questionnaires.[4]

This study uses data from the pretest questionnaires completed by the sample prior to or during the first few weeks of the program start dates. It examines data pertaining to the timing of juvenile offenses and victimizations that occurred prior to the pretest. Subsequent participation in the afterschool program could not have influenced these reports. Pretest questionnaires were completed by 817 (58 percent) of the 1400 afterschool program participants who received parental consent to participate in the MASOFP evaluation. Some potential study participants were not pretested because they were absent on the days the questionnaires were administered by the University of Maryland evaluation staff. This final sample of 817 represents a convenience sample of youths in grades 6 through 12 enrolled in afterschool programs or the schools serving the programs and whose parents consented to their participation in the study. Biases of an unknown nature may have been introduced at several points during the selection process, including in the initial selection of programs to be

3. Students in elementary school programs were not included because only the survey for secondary students included items about the timing of victimization and delinquency experiences.

4. A reviewer requested additional information about the comparison group. We compared the two groups on seven key measures: gender, race, age, grade, victimization score, delinquency score, and last year substance use. Analyses indicate that statistically significant differences existed for two of the seven measures. The afterschool participant group and comparison group were significantly different in terms of race whereby the afterschool participant group included significantly more non-White youths than the comparison group. Additionally, the afterschool participant group had a significantly lower average score for the last-year substance use scale than the comparison group. No significant differences were found for the remaining demographic measures or the measures for last year victimization and delinquency. Because the current study is not concerned with posttreatment differences between these two groups, any pretest discrepancies between the groups are irrelevant. The inclusion of the comparison group youth in all analyses is beneficial because their addition serves to increase the variability on the measures of interest in this study and to increase statistical power.

funded through MASOFP, the selection of programs to be included in the outcome evaluation, the selection of students for whom parental consent was obtained, and the selection of comparison students. Generalization to any larger population is therefore not appropriate. That being said, the rates of delinquency and victimization reported in this convenience sample of youths are comparable to those reported in national samples using similar measures (Soulé, 2003), including the National Study of Delinquency Prevention in Schools (NSDPS) (Gottfredson et al., 2000) and the Denver Youth Survey (DYS) (Huizinga & Esbensen, 1990). The percentage of youth who reported each offense behavior (regardless of time period) is reported in Table 1. Fifty-seven percent of the

Table 1 Descriptive statistics for total sample (N = 817)

Variable	*Mean*	*SD*	Range	*N*
Gender (0 = F, 1 = M)	0.40	0.49	0-1	815
Age	12.35	1.25	10-17	816
Grade	7.08	1.17	6-12	811
Black (0 = N, 1 = Y)	0.49	0.50	0-1	807
White (0 = N, 1 = Y)	0.42	0.49	0-1	807
Native American (0 = N, 1 = Y)	0.01	0.12	0-1	807
Asian (0 = N, 1 = Y)	0.01	0.12	0-1	807
Latino (0 = N, 1 = Y)	0.02	0.13	0-1	807
Other race (0 = N, 1 = Y)	0.04	0.20	0-1	807
Non-White (0 = N, 1 = Y)	0.58	0.50	0-1	807
Single-parent household (0 = N, 1 = Y)	0.31	0.46	0-1	810
Two-parent household (0 = N, 1 = Y)	0.42	0.50	0-1	810
Receives free lunch (0 = N, 1 = Y)	0.44	0.50	0-1	767
Any victimization	0.57	0.50	0-1	817
Any violent victimization	0.41	0.49	0-1	817
Robbery	0.07	0.26	0-1	817
Simple assault	0.33	0.47	0-1	817
Aggravated assault	0.07	0.26	0-1	817
Threatened with beating	0.20	0.40	0-1	817
Any property victimization	0.41	0.49	0-1	817
Any delinquency	0.55	0.50	0-1	817
Any violent delinquency	0.49	0.50	0-1	817
Carried a weapon	0.09	0.29	0-1	817
Involved in gang fights	0.14	0.34	0-1	817
Simple assault	0.46	0.50	0-1	817
Robbery	0.07	0.25	0-1	817
Any property delinquency	0.33	0.47	0-1	817
Any substance use	0.31	0.46	0-1	817
Cigarettes	0.14	0.35	0-1	817
Smokeless tobacco	0.04	0.19	0-1	817
Alcohol	0.25	0.43	0-1	817
Marijuana	0.08	0.27	0-1	817
Hallucinogens	0.02	0.13	0-1	817

sample (462 youths) reported a victimization, 55 percent (449 youths) reported a delinquency act, and 31 percent (249 youths) reported using any substances in the past 12 months. Table 1 presents these and additional descriptive statistics for the sample.

Measures

The measures were operationalized from the respondents' answers to a series of questions asking about their own victimization, delinquency, and substance use experiences, as well as the timing of these individual events during the past 12 months. The possible responses for each of these items were never, once, or two or more times. For this analysis, dichotomous measures were created for each individual offense as well as the aggregate category measures to indicate if the youths had experienced any victimization, delinquency, or substance use in the past year. For the aggregated scales, if any of the types of delinquency or victimization included in the category was reported, the category score is coded "1."

Victimization

The aggregate victimization measure includes seven items adapted from the Denver Youth Survey (Huizinga & Esbensen, 1990). To examine whether the timing of victimization varies by type of offense, the seven victimization items were collapsed into two subcategories: personal crime victimization and property crime victimization. The personal crime victimization (violent) offenses include being hit by someone else (simple assault), threatened with a beating, attacked with a weapon (aggravated assault), and had someone use a weapon, force, or strong-arm methods to get money or things from you (robbery). The property crime offenses include pocket picking, theft, and vandalism.

Delinquency

The aggregate delinquency measure includes 10 items adapted from the NSDPS analysis (Gottfredson et al., 2000). To examine the second research question, the 10 delinquency items were collapsed into two subcategories: personal crime delinquency and property crime delinquency. The personal crime delinquency (violent) offenses include carrying a weapon, gang fighting, hitting or threatening to hit a fellow student (simple assault), and using force or the threat of force to get property (robbery). The six remaining items measure the property crimes of vandalism, theft less than $50, theft more than $50, theft at school, joyriding, and breaking into a building or car.

Substance use

The aggregate substance use measure includes five items which asked subjects about their use of cigarettes, smokeless tobacco, alcohol (described as beer, wine or "hard" liquor), marijuana, and/or hallucinogens in the past 12 months. The individual substance use items were adapted from the NSDPS (Gottfredson et al., 2000).

Timing of victimization, delinquency, and substance use

The MASOFP data included a more precise measure of the timing of these dependent variables than employed in prior research. Survey respondents who answered "once" or "twice or more" to any of the offense behaviors were asked to proceed to a corresponding timing grid which asked them to indicate the one time when they were most likely to commit each crime, use each substance, or be a victim of each crime. Respondents selected "yes" for a specific time period by marking the circle under one of the following time categories: weekdays, before school; weekdays, during school; weekdays, between when school lets out until 6 p.m.; weekdays, between 6 p.m. until midnight; weekdays, between midnight and 6 a.m.; and anytime during the weekend.[5] A blank response under any corresponding time period was coded "no." The number of hours per week included in each time category is shown in Table 2.

Analysis

The analytic strategy was to compare the observed experience of victimization, delinquency, and substance use within each time period to the expected

Table 2 Number of hours per week in each time category

Time category	Hours per week	Percent of hours in each week
Weekdays, before school	12.5	7.44
Weekdays, during school	30.0	17.86
Weekdays, between when school lets out and 6 p.m.	17.5	10.42
Weekdays between 6 p.m. and midnight	30.0	17.86
Weekdays, between midnight and 6 a.m.	30.0	17.86
Anytime during the weekend	48.0	28.45

5. Although it cannot be assumed that all youth have the same school schedule, the references to periods before, during, and after school should approximate fairly equivalent absolute time periods. In addition, the referenced time periods allow for the examination of the time when juveniles are most likely to be victimized, commit a delinquent act, or use illegal substances, relative to the school day, which is of particular interest to the current study.

experience, based on the assumptions described below. Because the dependent variables are categorical, a chi-square test was employed to determine if the percentage of incidents observed in each time period was significantly different from the expected proportion given (a) an assumed random distribution and (b) a proportionate distribution equal to the hours contained in each time period. These analyses were limited to individuals who reported being victimized, committing a delinquent act, or using an illegal substance at least once in the past 12 months.[6]

A nonparametric (1×6) one-sample chi-square test[7] was calculated for all of the aggregated measures and for each individual offense to compare the observed frequency with the expected frequency of each event within each of the six time periods. If the observed chi-square (χ^2) value exceeds the critical value of 15.086 ($df = 5$, $p < .01$), we reject the null hypothesis of independence, i.e., that the observed number of incidents of a particular event (e.g., violent victimization) across the six time periods does not differ from the number expected if these incidents were distributed proportionally to the number of hours in each time period.[8]

Results

Table 3 presents the number and percentage of youth in the total sample that was victimized, committed a delinquent act, or used a substance within each of the six time periods for each of the aggregate categories and subcategories. The largest proportion of juveniles (32.6 percent) are victimized during the school hours, followed by the afterschool hours (18.0 percent) and the weekend (17.7 percent). Similarly, the largest portion of juveniles (39 percent) reported committing one or more delinquent acts during the school hours, followed by the weekend (19.6 percent) and the afterschool hours (18.8 percent).

6. In all cases, the results from the chi-square analyses under the assumption of equal distribution of the behaviors over the six time periods produced similar results to the analyses assuming a distribution that was proportional to the number of hours contained in each time period. Therefore, relevant tables display only the latter chi-square test statistic and results are interpreted based on the assumption that the expected percentages are computed proportionally to the number of hours contained in each time period.

7. Nonparametric tests are used with variables that are not normally distributed and to conduct statistical tests if the assumption of normality is violated (George & Mallery, 2001). A nonparametric chi-square test was appropriate for those analyses which assume the expected frequency within each time period is relative to the number of hours included in that time period.

8. One potential complication with the analytic strategy arises if respondents reported being victimized or committing a delinquent act in more than one time period. This potential complication is eliminated in the offense-specific analyses because the respondent is reporting the timing for one individual offense in contrast to the analyses of the aggregated measures in which a respondent may report separate offenses during different time periods. Overall, 49.8 percent of those who reported any offense (victimization, delinquency, and/or substance use) reported it at multiple time points. Accordingly, separate analyses that both included and excluded these overlapping cases were conducted to address this potential complication. In all cases, the results from the more conservative method of eliminating those who responded in multiple time periods were similar to results from the analyses using all cases. Therefore, only the latter results are presented.

Table 3 Number and percentage of youths reporting any victimization, delinquency, or substance use, by type of offense and time period for the total sample (N = 817)

	Time period					
Category	Before school	During school	After school until 6 p.m.	6 p.m.-midnight	Midnight-6 a.m.	Anytime during weekend
Any victimization	50 (6.1%)	266 (32.6%)	147 (18.0%)	56 (6.9%)	22 (2.7%)	145 (17.7%)
Any violent victimization	24 (2.9%)	146 (17.9%)	109 (13.3%)	37 (4.5%)	15 (1.8%)	91 (11.1%)
Any property victimization	29 (3.5%)	171 (20.9%)	69 (8.4%)	27 (3.3%)	11 (1.3%)	92 (11.3%)
Any delinquency	45 (5.5%)	319 (39.0%)	154 (18.8%)	56 (6.9%)	19 (2.3%)	160 (19.6%)
Any violent delinquency	28 (3.4%)	289 (35.4%)	84 (10.3%)	27 (3.3%)	13 (1.6%)	85 (10.4%)
Any property delinquency	22 (2.7%)	92 (11.3%)	95 (11.6%)	36 (4.4%)	12 (1.5%)	119 (14.6%)
Any substance use	25 (3.1%)	9 (1.1%)	61 (7.5%)	59 (7.2%)	15 (1.8%)	139 (17.0%)

Note. The number of cases reflects the number of youth who report any victimization, delinquency, or substance use in each of the respective time periods. An individual N within a particular crime category (e.g., any substance use) may include respondents who reported multiple incidents (e.g., use of alcohol and marijuana) during the same time period. Percentages are based on all 817 youths in the sample.

Conversely, the largest proportion of juveniles use substances during the weekend (17.0 percent), followed by the afterschool hours (7.5 percent), and the period from 6 p.m. to midnight (7.2 percent).

Next, the analysis was refined to examine the incidents for only those individuals who reported each respective behavior. Table 4 displays the observed percentage distribution of the aggregate measures for victimization, delinquency, and substance use by time period, among only those individuals who reported one or more of these behaviors. The figures in parentheses provide the difference between the *observed* percentage of a particular experience (e.g., "any" victimization) versus the *expected* percentage of the same experience for each time period, under the assumption that the percentages will be distributed proportionally to the number of hours in each period.[9] An examination of the

9. In the analysis of the aggregate category and subcategory measures, Table 4 presents the observed percentage distribution rather than a measure of total incidents since an individual may have reported two or more incidents in the same time period (e.g., robbery and aggravated assault after school) which would be categorized in the same aggregated measure (e.g., these both would be counted in the "any" victimization category as well as the violent victimization subcategory). If an individual reported two behaviors at the same time, then the timing analysis would count this as one measure of an "afterschool behavior (e.g., violent victimization) experience." If reported at separate times, then the analysis counts it twice.

Table 4 Observed percentage distribution of each type of victimization, delinquency, and any substance use, by time period

	Time period						
Behavior	Before school	During school	After school until 6 p.m.	6 p.m.-midnight	Midnight-6 a.m.	Anytime during weekend	χ^2 (df = 5)
Any victimization	7.3 (−0.1)	38.8 (+20.9)	21.4 (+11.0)	8.2 (−9.7)	3.2 (−14.7)	21.2 (−7.4)	378.9
Any violent victimization	5.7 (−1.7)	34.6 (+16.7)	25.8 (+15.4)	8.8 (−9.1)	3.6 (−14.3)	21.6 (−6.9)	238.8
Any property victimization	7.3 (−0.1)	42.9 (+25.0)	17.3 (+6.9)	6.8 (−11.1)	2.8 (−15.1)	23.1 (−5.4)	240.0
Any delinquency	6.0 (−1.5)	42.4 (+24.5)	20.5 (+10.1)	7.4 (−10.5)	2.5 (−15.4)	21.2 (−7.3)	486.2
Violent delinquency	5.3 (−2.2)	54.9 (+37.0)	16.0 (+5.6)	5.1 (−12.8)	2.5 (−15.4)	16.2 (−12.3)	568.5
Property delinquency	5.9 (−1.5)	24.5 (+6.6)	25.3 (+14.9)	9.6 (−8.3)	3.2 (−14.7)	31.6 (+3.1)	150.9
Any substance use	8.1 (+0.7)	2.9 (−15.0)	19.8 (+9.4)	19.2 (+1.3)	4.9 (−13.0)	45.1 (+16.6)	124.1

Note. All chi-square (χ^2) statistics are statistically significant, $p < .01$. Differences between the observed and expected percentages if they were distributed proportionally to the number of hours in each period appear in parentheses. Victimization: Percentages and statistical tests are based on the number of non-overlapping time period victimization experiences reported in each category: 686 for all victimization, 422 for violent victimization, and 399 for property victimization. Delinquency: Percentages and statistical tests are based on the number of non-overlapping time period delinquency experiences reported in each category: 753 for all delinquency, 526 for violent delinquency, and 376 for property delinquency. Substance use: Percentages and statistical tests are based on the number of non-overlapping time period substance use experiences reported in each category: 308 for any substance abuse. If an individual victimization (e.g., robbery), delinquency (e.g., simple assault), or substance use experience (e.g., cigarette use) was reported in multiple time periods, it is reported in each separate time period for each respective category and subcategory that included this individual measure. If multiple individual behaviors included in the same aggregate category or subcategory (e.g., robbery and simple assault victimization are both included in the any victimization category and also the any violent victimization subcategory) are reported in the same time period (e.g., after school) then these experiences are counted as one individual time period victimization experience for each respective category.

obtained test statistic for all of the aggregate categories and subcategories indicates each of these behaviors varies significantly by time period ($p < .01$).

For those 686 reports of victimizations that occurred in non-overlapping time periods,[10] the largest portion of victimization experiences (38.8 percent) were

10. As explained in footnote 8, individuals who reported one or more victimizations and/or offense behaviors in different time periods are included in each time period for which they reported committing the respective behavior. Therefore, the number of cases for this analysis equals 686, indicating some of the 462 individuals, who reported "any victimization," were victimized in multiple time periods.

reported during school hours, followed by the afterschool hours (21.4 percent), and the weekend (21.2 percent), respectively. Victimization varies significantly by time period. The observed percentage of "any" victimization experiences reported during school exceeds the expected percentage by 20.9 percent, providing further evidence that juveniles are most susceptible to victimization during school hours. Victimization is also elevated during the afterschool hours (+11.0) but depressed in the four remaining time periods.

When the aggregate "any" delinquency measure is examined for the 753 delinquent acts that occurred in non-overlapping time periods, the time period during school is most prominent (42.4 percent) while the difference between the observed and expected proportions indicates delinquency is also most elevated during this same period (+24.5 percent).[11] The afterschool period is the next most elevated time (+10.1 percent), while delinquency is depressed in the remaining time periods.

Finally, Table 4 indicates "any" substance use, as measured for the 308 substance use experiences that occurred in non-overlapping time periods, is most prominent (45.1 percent) and most elevated (+16.6 percent) during the weekend period, followed by the afterschool hours. While the afterschool hours are an elevated period for juvenile substance use, the difference between the observed and expected percentage is not as large as the difference reported for the weekend. In contrast to victimization and delinquency, juveniles were substantially less likely to use any substance during school hours.

In summary, the aggregated victimization, delinquency, and substance use measures indicate juveniles are *not* most likely to be involved in these behaviors during the afterschool hours as suggested by prior research. When measuring these behaviors with self-report data and utilizing the improved timing measures employed in this study, both victimization and delinquency are most prominent and most elevated during school hours, while substance use is most commonly observed during the weekend hours. However, important differences across types of offenses may have been minimized due to the aggregation of the offense measures. Therefore the following sections examine subcategories of each offense type as well as the specific offenses contained within each aggregate measure.

Timing of Violent and Property Offense Subcategories

We next conducted separate analyses for each subcategory of victimization and delinquency (i.e., violent and property; see Table 3) and for each individual

11. Most *prominent* refers to the greatest percentage of victimization, delinquency, and/or substance use experiences reported for a particular category, subcategory, and/or individual offense at a particular time period. Most *elevated* refers to the largest difference across the six time periods utilized in this study between the observed percentage and the expected percentage, assuming percentages were distributed proportionally to the number of hours contained within each time period.

violent victimization and delinquency offense (discussed in the subsequent section).

Violent victimization

As shown in Table 1, approximately 41 percent of the full sample reported being the victim of a violent crime, which is particularly high due to the simple assault or "hit by someone" item reported by 32.6 percent of the sample. Table 3 illustrates among the full sample, juveniles are most likely to be the victim of a violent crime during school hours (17.9 percent).

Table 4 reports the distribution of the 422 violent victimization experiences reported in non-overlapping time periods. The largest portion of violent victimization experiences was reported during school hours (34.6 percent), followed by the afterschool hours (25.8 percent) and the weekend (21.6 percent). The differences between the observed and expected percentages for each time period given the number of hours contained in each period indicates juvenile violent victimization is most elevated during school hours (+16.7 percent) and afterschool hours (+15.4 percent).

Property victimization

As illustrated in Table 1, 41 percent of the sample reported being the victim of one or more property victimizations. Similar to violent victimizations, youths are most likely to be a victim of a property crime during the school hours (20.9 percent; Table 3). However, in contrast to violent victimizations, the percentage of juveniles who reported any property victimization is next highest during the weekend (11.3 percent) rather than during the afterschool hours (8.4 percent). Among the 399 property victimization experiences reported in non-overlapping time periods (Table 4), these types of victimizations are most prominent (42.9 percent) and elevated (+25.0 percent) during the school hours. The substantial portion of property victimizations reported during the weekend hours (23.1 percent) is found to be less than the number expected by chance, however.

Violent delinquency

Among the full sample, 49 percent of juveniles reported committing a violent delinquent act (see Table 1), with 35.4 percent being committed during the school hours, and 10.4 and 10.3 percent during the weekend and afterschool periods, respectively (see Table 3). The limited sample also indicates violent delinquency experiences (n=526) are most prominent (54.9 percent) during the school period. In fact, the difference in the observed percentage versus the

expected percentage (+37.0) is almost seven times greater than the next most elevated period; the afterschool period (+5.6). The observed pattern is largely being driven by the fact that simple assault during the school day is highly prevalent in the sample of juveniles.

Property delinquency

With the exception of the aggregate substance use measures, the results so far have consistently suggested that among those juveniles who reported involvement in any of the behaviors, the hours during school are the most troublesome. However, Table 4 shows that among the 376 property delinquency experiences reported in non-overlapping time periods, the largest percentage of property delinquency experiences was reported during the weekend (31.6 percent) and afterschool hours (25.3 percent). However, the greatest difference between the observed and expected percentages of property delinquent acts occurs in the afterschool hours (+14.9). Property delinquency is also elevated during the school and weekend hours, but not as much as the afterschool hours.

To summarize, the disaggregated analysis shows that violent victimizations, violent offenses, and property victimizations are all most likely during school hours. Violent victimizations are also elevated during the afterschool hours, but property victimizations and violent offenses show only slight elevation during afterschool hours. Property offenses are the only behavior to be most elevated during the afterschool hours.

Timing of Individual Offenses

Finally, we examined the variation of timing for specific violent offenses. Similar to the analysis of the combined offense categories, we found these behaviors are generally most likely to occur during the school hours, rather than after school. We sought to identify which offenses are driving the observed aggregated results and to determine which behaviors diverge from these patterns.[12]

Individual violent victimization offenses

Among the four violent victimization offenses, juveniles most commonly experience simple assault (33 percent), followed by being threatened with a beating

12. The timing of all individual offenses, including each property offense, was analyzed. However, for purposes of brevity, the current study focused on the results of the individual violent offenses since there was little variation in the timing of the individual property offenses. The results of the analysis of the individual property offenses are available from the authors upon request.

(20 percent). The more serious violent victimization offenses (aggravated assault and robbery) are each reported by 7 percent of the sample.

Table 5 indicates the observed percentage of incidents for each violent victimization offense during the six time periods for the sample of youth who were a victim of a violent crime. All four individual violent victimization offenses vary significantly by time period. For robbery and simple assault, the largest percentage of incidents occurs during the school hours, 35.2 percent and 40.3 percent, respectively. Robbery and simple assault are also most elevated during the school hours (+17.2 percent and +22.4 percent, respectively). The largest observed percentage of aggravated assault and being threatened with a beating incidents are reported during the weekend period (39 percent and 26.3 percent, respectively). However, when taking into consideration the number of hours in each period, both aggravated assault victimizations (+20.0 percent) and being threatened with a beating (+15.2 percent) are most elevated during the afterschool hours.

Individual violent delinquency offenses

Among the four violent delinquency offenses, the most common is simple assault (46 percent), followed by involvement in gang fights (14 percent), carrying a weapon (9 percent), and robbery (7 percent). Table 6 presents the results of the timing analyses for those individuals who reported each violent delinquency offense. All four individual violent delinquency offenses vary

Table 5 Percentage incidents of individual violent victimization offenses by type of victimization and time period

	Time period						
Violent victimization	Before school	During school	After school until 6 p.m.	6 p.m.-midnight	Midnight-6 a.m.	Anytime during weekend	χ^2 (df = 5)
Robbery	3.7 (−3.7)	35.2 (+17.2)	16.7 (+6.3)	5.6 (−12.4)	0 (−18.0)	38.9 (+10.4)	28.4
Simple assault	4.9 (−2.6)	40.3 (+22.4)	25.0 (+14.6)	7.8 (−10.1)	2.6 (−15.3)	19.4 (−9.1)	190.1
Aggravated assault	5.1 (−2.4)	15.3 (−2.5)	30.5 (+20.0)	6.8 (−11.0)	3.4 (−14.4)	39.0 (+10.5)	36.7
Threatened with beating	5.6 (−1.8)	25.6 (+7.7)	25.6 (+15.2)	11.3 (−6.6)	5.6 (−12.3)	26.3 (−2.2)	59.1

Note. All chi-square (χ^2) statistics are statistically significant, $p < .01$. Differences between the observed percentage and expected percentage if they were distributed proportionally to the number of hours in each period appear in parentheses. Percentages and statistical tests based on the number of incidents reported for each type of violent victimization: 54 for robbery, 268 for hit by someone, 59 for attacked with weapon, and 160 for threatened with beating.

Table 6 Percentage incidents of individual violent delinquent offenses, by type of crime and time period

	Time period						
Violent crime	Before school	During school	After school until 6 p.m.	6 p.m.-midnight	Midnight-6 a.m.	Anytime during weekend	χ^2 (df = 5)
Carried a weapon	5.3 (−2.2)	22.4 (+4.5)	17.1 (+6.7)	11.8 (−6.1)	2.6 (−15.3)	40.8 (+12.4)	20.1
Involved in gang fights	5.3 (−2.1)	17.7 (−0.2)	25.7 (+15.3)	10.6 (−7.3)	5.3 (−12.6)	35.4 (+6.9)	41.0
Simple assault	4.7 (−2.7)	73.4 (+55.5)	12.7 (+2.2)	1.3 (−16.6)	1.3 (−16.6)	6.6 (−21.9)	837.8
Robbery	7.0 (−0.4)	28.1 (+10.2)	26.3 (+15.9)	7.0 (−10.9)	3.5 (−14.4)	28.1 (−0.3)	27.5

Note. All chi-square (χ^2) statistics are statistically significant, $p < .01$. Differences between the observed percentage and expected percentage if they were distributed proportionally to the number of hours in each period appear in parentheses. Percentages and statistical tests based on the number of incidents reported for each type of violent delinquency: 76 for carried a weapon, 113 for involved in gang fights, 379 for simple assault (hit others), and 57 for robbery.

significantly by time period. The simple assault offense is primarily responsible for the observed pattern of elevation in total delinquency and violent delinquency during the school hours. Among the remaining violent delinquency incidents, carrying a weapon (41 percent) and involvement in gang fights (35 percent) are both most prominent during the weekend hours, while robbery is equally prominent during both school and the weekend hours (28 percent). After controlling for the number of hours in each time period, involvement in gang fights (+15.3 percent) and robbery (+15.9 percent) are most elevated during the afterschool hours. Carrying a weapon is most elevated during the weekend (+12.4 percent).

Individual substance use offenses

The most commonly reported substance used by juveniles is alcohol (25 percent), followed by cigarettes (13.8 percent), marijuana (7.8 percent), smokeless tobacco (3.7 percent), and hallucinogens (1.8 percent). Table 7 indicates the observed percentage of incidents for each substance use offense within the six times periods. With the exception of hallucinogen use, substance use offenses vary significantly by time period. The distribution of the observed percentages for each type of substance indicates that the use of all substances, except hallucinogens, is most prominent during the weekend hours.

The differences between the observed and expected percentages show a somewhat different pattern of the timing of juvenile substance use. For alcohol

Table 7 Percentage incidents of substance use, by type of substance and time period

	Time period						
Type of substance	Before school	During school	After school until 6 p.m.	6 p.m.-midnight	Midnight-6 a.m.	Anytime during weekend	χ^2 ($df = 5$)
Cigarettes	10.8 (+3.3)	4.5 (−13.3)	26.1 (+15.6)	13.5 (−4.3)	1.8 (−16.0)	43.2 (+14.7)	64.7
Smokeless tobacco	17.2 (+9.6)	3.4 (−14 .5)	27.6 (+17.3)	10.3 (−7.6)	3.4 (−14.5)	37.9 (+9.3)	20.5
Alcohol	3.6 (−3.8)	1.5 (−16.4)	13.3 (+2.9)	21.5 (+3.6)	5.1 (−12.8)	54.9 (+26.4)	101.5
Marijuana	13.3 (+5.8)	5.0 (−12.8)	15.0 (+4.5)	11.7 (−6.1)	8.3 (−9.5)	46.7 (+18.2)	20.9
Hallucinogens	6.7 (−0.6)	13.3 (−4.7)	26.7 (+16.0)	20.0 (+2.0)	13.3 (−4.7)	20.0 (−8.7)	4.6^{NS}

Note. All chi-square (χ^2) statistics are statistically significant, $p < .01$ except for hallucinogen use. Percentages and statistical tests based on the number of incidents reported for each type of substance use: 111 for cigarettes, 29 for smokeless tobacco, 195 for alcohol, 60 for marijuana, and 15 for hallucinogens. Differences between the observed percentage and expected percentage if they were distributed proportionally to the number of hours in each period appear in parentheses.

(+26.4 percent) and marijuana use (+18.2 percent), the weekend hours are clearly the most elevated. However, relative to the amount of time available to use the substances, cigarette (+15.6 percent) and smokeless tobacco use (+17.3 percent) are slightly more elevated during the afterschool hours compared to the weekend.

Summary and Discussion

In recent years, afterschool programs have received considerable public and policymaker support for their potential to reduce juvenile delinquency and victimization. This support stems from a series of reports which examined official data and indicated juvenile crime and victimization peak during the afterschool hours (Sickmund et al., 1997; Snyder & Sickmund, 1999, 2006; Snyder et al., 1996). Subsequent research efforts utilizing self-report data provided evidence that the afterschool juvenile crime peak may be more modest than suggested in previous reports (Gottfredson et al., 2001) and may vary according to offense type (Gottfredson & Soulé, 2005).

Utilizing self-report data collected from a sample of juveniles participating in an evaluation of afterschool programs in Maryland, this study was designed to advance our understanding of the timing of juvenile victimization, delinquency, and substance use. This study's initial aggregate analysis indicates victimization

and delinquency are most prominent and elevated during the school hours, while substance use is most common during the weekend. The examination of the victimization and delinquency violent and property subcategories also indicates violent victimization, property victimization, and violent delinquency are also most prominent during the school hours. Only property delinquency was found to be most elevated during the afterschool hours.

The final step in the analysis, which included an examination of the individual violent and substance use offenses, reveals that, in general,[13] the more serious violent offenses for both victimization and delinquency are elevated during the afterschool hours, while simple assault offenses (for both victims and delinquents) are overwhelmingly most prominent during school hours. If one categorizes these individual offenses as minor and serious violent crimes, a distinct pattern about in-school and afterschool juvenile crime becomes apparent. The most commonly reported type of victimization and delinquency is simple assault. The evidence clearly suggests these incidents are most prominent during the school day, which is supported by previous research (United States Department of Education, 1997) and also explains why studies relying primarily upon official data would conclude that crime is elevated during the afterschool hours. More serious crimes can be expected to be more readily detected and recorded by police.

The difference in timing regarding more serious and less serious forms of juvenile violent crime is both supported and contradicted by the findings reported by Jacob and Lefgren (2003) who suggested that one undesirable side effect of grouping youth together for schooling is an increase in violent crimes. Jacob and Lefgren noted that schools increase the level of interactions among adolescents, thereby raising the likelihood of violent conflicts. The current study's findings regarding elevated levels of simple assaults during the school day support this idea. In fact, when Jacob and Lefgren estimated the influence of school on individual offenses, the largest reported effect was observed for simple assaults.

The results are consistent with the routine activities framework that guided this investigation, and suggest that key routine activity variables vary both by time of day and by crime type. Because youths and their property are concentrated in a single location during the school day, this time of day represents a time of heightened opportunity both for property victimization and for interpersonal altercations. However, guardianship in schools is likely to be most effective against serious interpersonal crimes. Many schools routinely provide physical surveillance of school entrances to reduce the likelihood that weapons will enter the building. Metal detectors are not uncommon — especially in urban

13. The finding regarding the timing of robbery victimizations (Table 5) does not follow this general pattern. Rather, it suggests that robbery victimization is most elevated during school hours. The wording of the robbery victimization item was such that youths may have included less serious victimization experiences in this category (see *measures* section). Note that the results for robbery offending, which was worded in a more straightforward fashion, does follow the suggested pattern.

secondary schools. On the other hand, guardianship against minor fights may be less effective because norms against these behaviors may be less well understood and not necessarily shared by all members of the community, and guardianship against crimes such as robbery may be made more difficult because they may occur in more private areas. The results for property crimes are not as straightforward. Students' property is more likely to be victimized during school hours, but students are more likely to commit property crimes during the afterschool hours. This is undoubtedly because many property offenses committed by students during afterschool hours victimize non-students. A routine activities interpretation would suggest that more suitable property crime targets are available during afterschool hours than during school hours (when much property is kept in lockers), and that perhaps less effective guardianship is available in the afterschool hours.

The results regarding the timing of juvenile substance use may be of particular interest to parents. The greatest percentage of substance users reported using cigarettes, smokeless tobacco, alcohol, and marijuana during the weekend hours. However, after controlling for the number of hours in each time period, cigarette and smokeless tobacco use are slightly more elevated during the afterschool hours than during the weekend hours. The weekend hours are clearly the most prominent period for juveniles to report using alcohol and marijuana. Insofar as alcohol and marijuana are likely to need more privacy to be consumed without fear of repercussions, these results may suggest they are mostly consumed at less well-supervised weekend parties. However, students probably have ample opportunities to smoke cigarettes or use smokeless tobacco immediately after school without the same concern for facing disciplinary actions from school personnel.

Limitations

There are a few key limitations to this study. First, the measures included in this analysis were limited to juveniles' self-reporting of their own individual behavior. In addition, the data do not include information on the location of the delinquency and victimization. It is possible that youth who report engaging in delinquent behavior or being victimized during the school hours were not at school when this behavior occurred (i.e., they were absent from school). Future research would benefit from the use of interviews that would allow the interviewer to use more sensitive screening and follow up questions (e.g., location of delinquent behavior and/or victimization) when a respondent indicates that he/she has engaged in or been a victim of a particular delinquent activity. Interviews might also be helpful in addressing a second and related limitation: The one-year reference period used in this study did not allow for a differentiation of events that occurred during times when school was not in session from those that occurred when school was in session. An interviewer could differentiate the timing of events by tracking the seasonality of these reported incidents. These

methodological enhancements would provide a more accurate picture of juvenile victimization and delinquency.

Another limitation of this study is that it uses a convenience sample of juveniles who participated in the MASOFP evaluation. Future research should examine the timing of juvenile victimization, delinquency, and substance use with a nationally representative sample. Data from a large, nationally representative sample would also permit an examination of the temporal differences in behavior by demographic subgroup. A fourth limitation of this study is that the data does not provide information on other types of victimization such as sexual assault, intrafamily victimizations, and bullying. The inclusion of measures of more serious offenses (e.g., rape and sexual assault), commonly experienced offenses (e.g., bullying), and types of substances, would expand the scope of the study by examining a more comprehensive range of all juvenile offenses. Finally, our results suggest, but do not provide direct evidence in support of, differing levels of routine activities variables by time of day and crime type. Research that measured guardianship and target suitability more directly and showed how these variables differ by time and crime type would be a useful next step.

Conclusions

Support for afterschool programs has been based in part by the perception that reduced adult supervision during the afterschool hours is responsible for elevated crime during that period. Our research suggests that the most prevalent violent offense for both victimization and delinquency, simple assault, is most prominent during the school hours, but that more serious crimes are elevated during the afterschool hours. The results suggest that simply providing a place for youth to go after school would not likely reduce the offense which juveniles are most likely to experience.

The results suggest that afterschool programs may be effective for addressing more serious crime, but their effectiveness will depend upon the extent to which afterschool programs can successfully recruit and retain youths who are likely to engage in serious crime. Unfortunately, research suggests both that delinquency-prone youths are less likely than their more prosocial peers to voluntarily participate in ASPs (Gottfredson et al., 2001), and that high-risk youths are more likely to drop out of programs while low-risk youths remain (Weisman & Gottfredson, 2001). If afterschool programs are to realize their potential for reducing crime, they will have to be designed to attract a more at-risk population.

School-based prevention strategies should continue to be employed as a major mechanism for reducing crime, both in and out of school. By now, numerous studies and meta-analyses have firmly established that school-based violence and delinquency prevention strategies are effective (Department of Health and Human Services, 2001; Gottfredson, 2001; Gottfredson, Wilson, &

Najaka, 2002; Hahn et al., 2007; Wilson & Lipsey, 2007; Wilson, Gottfredson, & Najaka, 2001; Wilson, Lipsey, & Derzon, 2003). Particularly effective are those strategies that focus on teaching youths about recognizing and resisting negative social influences, using social problem-solving skills, communicating effectively, and managing emotions. Environmentally focused interventions that seek to enhance guardianship in schools have also been demonstrated to be effective for reducing problem behaviors (Gottfredson, Wilson, & Najaka, 2002; Wilson, Gottfredson & Najaka, 2001).

References

Chandler, K. A., Chapman, C. D., Rand, M. R., & Taylor, B. M. (1998). *Students' reports of school crime: 1989 and 1995*. Washington, DC: US Departments of Education and Justice.

Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review, 44*, 588-608.

Department of Health and Human Services. (2001). *Youth violence: A report of the Surgeon General*. Washington, DC: Department of Health and Human Services.

Dinkes, R., Cataldi, E. F., Kena, G., & Baum, K. (2006). *Indicators of school crime and safety: 2006* (NCES 2007-003/NCJ 214262). US Departments of Education and Justice. Washington, DC: US Government Printing Office.

Farrington, D. P. (1993). Understanding and preventing bullying. *Crime and Justice, 17*, 381-458.

Finkelhor, D., & Ormrod, R. (1999). *Reporting crimes against juveniles. Juvenile justice bulletin* (Report No. NCJ-178887). Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention (ERIC Document Reproduction Service No. ED437451).

Garofalo, J., Siegel, L., & Laub, J. H. (1987). School-related victimizations among adolescents: An analysis of the National Crime Survey (NCS) narratives. *Journal of Quantitative Criminology, 3*, 321-338.

George, D., & Mallery, P. (2001). *SPSS for Windows step by step: A simple guide and reference 10.0 update*. Boston: Allyn and Bacon.

Gottfredson, D. C. (2001). *Delinquency and schools*. New York: Cambridge University Press.

Gottfredson, G. D., & Gottfredson, D. C. (1985). *Victimization in schools*. New York: Plenum.

Gottfredson, D. C., Cross, A., & Soulé, D. A. (2007). Distinguishing characteristics of effective and ineffective afterschool programs to prevent delinquency and victimization. *Criminology & Public Policy, 6*, 289-318.

Gottfredson, D. C., Gottfredson, G. D., & Weisman, S. A. (2001). The timing of delinquent behavior and its implications for after school programs. *Criminology and Public Policy, 1*, 61-86.

Gottfredson, D. C., & Soulé, D. A. (2005). The timing of property crime, violent crime, and substance use among juveniles. *Journal of Research in Crime and Delinquency, 42*, 110-120.

Gottfredson, D. C, Wilson, D. B., & Najaka, S. S. (2002). School-based crime prevention. In L. W. Sherman, D. P. Farrington, B. C. Welsh, & D. L. MacKenzie (Eds.), *Evidence-based crime prevention*. London: Routledge.

Gottfredson, G. D., Gottfredson, D. C., & Czeh, E. R. (2000). *National study of delinquency prevention in schools*. Ellicott City, MD: Gottfredson Associates.

Hahn, R., Fuqua-Whitley, D., Wethington, H., Lowry, J., Liberman, A., Crosby, A. et al. (2007). The effectiveness of universal school-based programs for the prevention of violent and aggressive behavior. *American Journal of Preventive Medicine, 3 (suppl)*, S130-S143.

Hindelang, M. J., Gottfredson, M. R., & Garofalo, J. (1978). *Victims of personal crime: An empirical foundation for a theory of personal victimization*. Cambridge, MA: Ballinger.

Huizinga, D., & Esbensen, F. (1990). *Scales and measures of the Denver Youth Survey*. Boulder, CO: University of Colorado, Institute of Behavioral Science.

Jacob, B. A., & Lefgren, L. (2003). Are idle hands the devil's workshop? Incapacitation, concentration, and juvenile crime. *American Economic Review, 93*, 1560-1577.

Kvaraceus, W. (1945). *Juvenile delinquency and the school*. New York: World Book Company.

Maryland After School Opportunity Fund Advisory Board, Lt. Governor K. K. Townsend, Chair. (1999). *Maryland After-School Opportunity Fund Program Comprehensive Plan*.

PRIDE. (2003). *2002-2003 PRIDE surveys national summary*. Bowling Green, KY.

Sampson, R. (2004). Bullying in schools. *Problem-Oriented Guides for Police Problem-Specific Guides Series, No. 12*. Washington, DC: US Department of Justice, Office of Community Oriented Policing Services.

Sickmund, M., Snyder, H., & Poe-Yamagata, E. (1997). *Juvenile offenders and victims: 1997 update on violence—statistics summary*. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H., & Sickmund, M. (1999). *Juvenile offenders and victims: 1999 national report*. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H., & Sickmund, M. (2006). *Juvenile offenders and victims: 2006 national report*. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H., Sickmund, M., & Poe-Yamagata, E. (1996). *Juvenile offenders and victims: 1996 update on violence*. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Soulé, D. A. (2003). It's 3 p.m. Do you know where your child is or what he/she is doing? An exploratory study on the timing of juvenile victimization and delinquency. Unpublished doctoral dissertation, University of Maryland, College Park.

United States Department of Education, National Center for Education Statistics. (2002.) *Are America's schools safe? Students speak out: 1999 school crime supplement*, (NCES 2002-331). Washington, DC: US Department of Education.

United States Department of Education, National Center for Education Statistics. (1997). *Principal/school disciplinarian survey on school violence*. Fast Response Survey System (FRSS) 63. Washington, DC: US Department of Education.

Weisman, S. A., & Gottfredson, D. C. (2001). Attrition from after school programs: Characteristics of students who drop out. *Prevention Science, 2*, 201-205.

Whitaker, C. J., & Bastian, L. D. (1991). *Teenage victims: A national crime survey report* (NCJ-128129). Washington, DC: Bureau of Justice Statistics.

Wilson, S. J., & Lipsey, M. J. (2007). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *American Journal of Preventive Medicine, 33(suppl 2)*, S130-S143.

Wilson, S., Lipsey, M. J., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology, 71*, 136-149.

Wilson, D. B., Gottfredson, D. C., & Najaka, S. S. (2001). School-based prevention of problem behaviors: A meta-analysis. *Journal of Quantitative Criminology, 17*, 247-272.