

UNSTRUCTURED SOCIALIZING AND RATES OF DELINQUENCY*

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This article applies an individual-level routine activities perspective to explaining rates of delinquency. The theoretical analysis also links the opportunity processes of that perspective to key themes of social disorganization theory. Multilevel analyses of 4,358 eighth-grade students from thirty-six schools in ten cities support the central hypothesis: Time spent in unstructured socializing with peers has both individual and contextual effects that explain a large share of the variation in rates of delinquency across groups of adolescents who attend different schools. In addition, parental monitoring has a very strong contextual effect on unstructured socializing, which supports the proposed integration of routine activity and social disorganization perspectives.

Although it is individual adolescents who engage in delinquent behavior, delinquency is not strictly an individual-level phenomenon. Rates of delinquency also vary across groups, such as networks of friends (Esbensen and Huizinga, 1993; Haynie, 2001), youth attending the same

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school (Welsh, Greene and Jenkins, 1999), and adolescents living in the same neighborhood (Elliott et al., 1996) or county (Osgood and Chambers, 2000).

Explaining variation across groups is a different task than explaining individual behavior. Of course, it is logically possible for individual-level causal processes to create differences across groups. A neighborhood might be plagued by delinquency because a high proportion of its youth have risk-prone personalities (Gottfredson and Hirschi, 1990; Moffitt, 1993). Yet aggregate differences may also result from emergent properties that characterize the group as a whole rather than specific individuals. For instance, a neighborhood's high rate of delinquency could stem from a shared norm encouraging it, such as if residents generally agreed that fighting and stealing are good ways for adolescent males to prove their manhood (Miller, 1958).

Our study asks whether time use accounts for differences among groups in rates of delinquency. Specifically, we test whether Osgood and colleagues' (1996) application of routine activity theory to individual deviant behavior can be extended to explain aggregate level variation. Based on this theory, we predict that students' time use has both individual and contextual effects on rates of delinquency.

We also develop a framework for integrating our routine activity perspective on aggregate rates of offending with elements of social disorganization theory. This integration is useful for showing the relevance of the routine activity approach to the broader field of research on communities and crime. This study tests some of the implications of the larger framework.

UNSTRUCTURED SOCIALIZING

Our theoretical approach is based on Osgood and colleagues' (1996) explanation of individual deviant behavior in terms of routine activities of everyday life. Their work combined, first, routine activity theory's emphasis on activities away from household and family as creating opportunities for crime and deviance (Cohen and Felson, 1979; Felson, 1998; Hindelang et al., 1978), second, situational conceptions of motivation from theories of delinquency (Briar and Piliavin, 1965; Gold, 1970), and, third, findings from studies relating deviant behaviors to adolescents' ordinary, everyday activities (for example, Agnew and Peterson, 1989; Hundleby, 1987; Wallace and Bachman, 1991).

Osgood et al. (1996) proposed that situations conducive to deviance are especially prevalent during unstructured socializing with peers in the absence of authority figures. They argued that the presence of peers will make deviant acts easier and more rewarding, the absence of authority

figures will reduce the potential for social control responses, and the lack of structure will leave time available for deviance.¹

Therefore, individuals who spend more time in unstructured socializing will also more frequently engage in deviant behavior. Those authors examined individual change across five waves of data for the 18-25 age span, and found that unstructured socializing was strongly related to crime and delinquency, heavy alcohol use, marijuana use, use of other illicit drugs and dangerous driving (Osgood et al., 1996). Their fixed effects analysis put the relationship to a particularly rigorous test by controlling for all stable individual differences that might predict who would be more likely to spend their time in this way. Furthermore, Haynie and Osgood (unpublished) demonstrated that the relationship is not an indirect result of having delinquent peers. They found that controlling for peer delinquency did not reduce the relationship of unstructured socializing with delinquency, and the strength of the relationship did not depend on having delinquent peers. Indeed, delinquency was as strongly related to unstructured socializing as it was to peer delinquency.

Our work follows a central tenet of the routine activity perspective by treating the ordinary activities of everyday life as an explanatory bridge between social structure and individual outcomes (Cohen and Felson, 1979). In this light, one reason that groups differ in rates of deviant behavior is that positions in society determine conditions of life that affect how individuals spend their time. For example, Osgood and his colleagues (1996) provided evidence that unstructured socializing is an important mediator of age, sex and class differences in deviant behavior. We apply this logic to explaining differences in rates of delinquency across social groups.

COMPOSITIONAL EFFECTS OF UNSTRUCTURED SOCIALIZING

An individual-level variable such as unstructured socializing could account for differences across groups in rates of delinquency two ways. The first is a compositional effect, which is simply the aggregate consequence of an individual-level causal process. If individual adolescents who spend more time "hanging out" engage in more delinquency, as several studies demonstrate (see, for example, Agnew and Peterson, 1989; Hawdon, 1996; Hundleby, 1987; Junger and Wiegersma, 1995; Osgood et al., 1996; Riley, 1987; Wallace and Bachman, 1991), and if

1. This idea differs from the relationship of time use to offending found in Hirschi's (1969) social bond of involvement. The rationale behind that bond is that time spent in any activity other than delinquency reduces time available for offending. Our focus is on time use that presents opportunities for offending (see Osgood et al., 1996).

the average amount of time spent this way is higher in some groups than in others, then it follows that those groups would have higher rates of delinquency.

CONTEXTUAL EFFECTS OF UNSTRUCTURED SOCIALIZING

The second possibility is a context effect. Contextual effects are consequences of emergent properties of groups or social settings, and thus they cannot be accounted for at the individual-level. Interest in contextual effects has increased tremendously in the last few decades, particularly following advances in relevant statistical methods (see Raudenbush and Bryk, 2002; Goldstein, 1995). For example, Sampson (1997) provided empirical evidence for an emergent effect of informal social control by families over adolescents. He found there was less delinquency in neighborhoods where most families have a high level of social control over their children. This relationship constituted a contextual effect rather than an individual-level effect because it held true even for those adolescents whose own families did not have much control. We apply this idea of emergent effects within a routine activities perspective by testing whether being in an environment where most adolescents spend a lot of time in unstructured socializing increases the delinquency of all adolescents.

An emergent relationship at the aggregate level is distinct from individual-level processes, so it will not arise unless additional dynamics come into play. The logic of the routine activity perspective provides a foundation for hypothesizing such contextual effects. A core assumption in the routine activities approach of Osgood et al. (1996) is that opportunities for deviant behavior are especially prevalent when adolescents come together. There are two ways that a high average rate of unstructured socializing among a group of youth could increase opportunities for offending for all of them. Both of these processes are foreshadowed by Felson and Gottfredson's (1984) discussion of concentration effects that would arise with increases in the proportion of unsupervised youth.

One reason to expect a contextual effect of unstructured socializing is that a higher mean-level of unstructured socializing may increase the pool of potential companions. In other words, it may be easier to find co-offenders when many adolescents spend lots of time hanging out. Ease of finding companions should both raise individual rates of unstructured socializing (feeding into the individual-level causal process) and increase the average number of companions. A larger number of companions could increase opportunities for deviance both by heightening the interactional processes among adolescents that support delinquency (see Dishion, Spracklen, Andrews and Patterson, 1996) and by discouraging adults from attempting to exercise control over their behavior (Sampson and Groves,

1989). In both cases, a contextual effect is produced in that the average rate of unstructured socializing affects the delinquency of everyone in the group.

Second, a high rate of unstructured socializing in a population would raise the rate of encounters among groups of adolescents. In this circumstance, there would be more chances of coming across rivals who are targets for assault or theft, of running into someone who has drugs or stolen goods for sale, or of learning about an unchaperoned party where trouble is likely. These patterns would produce context effects because the general level of unstructured socializing affects the number of opportunities for deviance available to everyone.

SOCIAL DISORGANIZATION AND ROUTINE ACTIVITIES

We believe that our routine activities perspective complements social disorganization theory, the dominant approach to explaining differences between communities in rates of crime and delinquency (Shaw and McKay, 1942; Sampson and Groves, 1989; Bursik and Grasmick, 1993). Our portrayal of socializing with peers as generating opportunities for delinquency meshes with social disorganization theory's emphasis on unsupervised peer groups as a proximal cause of higher delinquency rates. Indeed, the routine activities perspective provides a clear account for this relationship, which has been missing in work on social disorganization. Additionally, we draw on the larger framework of social disorganization theory to enhance our understanding of routine activities. In particular, we test whether shared parenting and collective monitoring, which social disorganization theory emphasizes, can explain differences between groups in rates of unstructured socializing.

The essence of social disorganization theory is that high rates of crime and delinquency arise when a community's informal social control mechanisms become ineffective (Bursik, 1988; Bursik and Grasmick, 1993; Sampson and Groves, 1989; Sampson and Lauritsen, 1994; Shaw and McKay, 1942). Current versions of social disorganization theory emphasize the importance of social networks as the basis for community control over crime and delinquency. For juvenile delinquency, an especially important aspect of these social networks is relationships among adolescents, their parents and other adults. The more adults in the neighborhood who know one another, the more they will take responsibility for supervising one another's children, which in turn will lower the delinquency rate (Sampson 1987, 1997).

Our interest centers on the role of the adolescent peer group in social disorganization theory. In this theory, the ability of a community to

monitor its youth affects the presence and prominence of unsupervised peer groups, which in turn affects the delinquency rate of an area. This emphasis goes back as far as Thrasher (1927), who gathered evidence that delinquent groups or gangs typically develop from spontaneous, unsupervised playgroups. Reiss also expressed this idea: "co-offending emerges when parental and community controls over youths are weak, giving rise to a peer-control system that supports co-offending and to networks that simplify the search for accomplices" (1986:11). Sampson and Groves (1989) demonstrated that the presence of unsupervised peer groups is a key mediator between community structure and delinquency.

Yet, the mechanisms by which peer groups serve this function are sketchy at best. Many authors connect the relationship between unsupervised peer groups and delinquency rates to the "social fact" that delinquency is often a group phenomena (Bursik and Grasmick, 1993; Reiss, 1986; Sampson and Groves, 1989; Shaw and McKay, 1942). This "fact," however, does not explain why peer groups matter.

One view gives a cultural or normative interpretation to the role of the peer group in community influence on delinquency. For instance, Empey portrayed this aspect of social disorganization as a cultural deviance phenomenon: "a child's immediate play group becomes a vehicle for perpetuating delinquent traditions and forcing adherence to them, but such traditions are usually learned from older groups and individuals" (1982:192). Though this account sounds plausible, it has complex and unappealing implications. If delinquent traditions or norms are to explain the level of delinquency in an aggregate group, then they must have a meaning that is distinct from that group's level of delinquency. Unfortunately, the standard definition of norms, which comes from individual-level research, is conceptually redundant with the aggregate delinquency rate. The usual measure of the norms impinging on an individual is his or her friends' delinquency (Akers et al., 1979; Elliott et al., 1985; Warr, 1993). Yet this measure would reflect community norms only if adolescents generally chose friends from their own community, in which case the average of friends' delinquency would be essentially identical to the delinquency rate we wish to explain. Though this does not imply that a cultural explanation is incorrect, it does mean that we do not yet have the conceptual or methodological tools to implement and test such explanations.

Our explanation differs from the cultural theories of deviance that concern how delinquency is learned from others and is sustained across successive cohorts (Empey, 1982; Shaw and McKay, 1942). We believe that our routine activity explanation of the importance of unsupervised peer groups avoids the conceptual and methodological difficulty of distinguishing community norms from rates of delinquency and that it is

more consistent with the structural rather than cultural emphasis of social disorganization theory. Specifically, we see unsupervised peers groups as important because their presence indicates that adolescents are spending a great deal of time in unstructured socializing with peers away from authority figures, and this activity pattern presents them with an abundance of situations conducive to deviance. Thus, we emphasize contextual and situational influences rather than postulating a causal role for a peer culture that values delinquency. In short, we focus on opportunity rather than learning.

Although the link between routine activities and unsupervised peer groups has not yet been developed in the social disorganization framework, early writings hint at the potential importance of unstructured socializing. For instance, Shaw and McKay specified "use of leisure time by children" (1942:178) as one reason for community differences in rates of delinquency. They viewed the urbanization of society as altering the structure of daily life for children, leaving them with more free time and less supervision than they had in rural settings. Similarly, Thomas and Znaniecki (1958/1927) noted that the free time youth experienced in urban areas offered them a variety of opportunities for deviance unavailable in rural areas. We therefore believe that our routine activity approach to explaining aggregate rates of delinquency capitalizes on undeveloped themes of early work in the social disorganization tradition.

To this point, we have discussed how our research informs social disorganization theory; however, social disorganization theory also can inform us about what factors should contribute to higher rates of unstructured socializing. As we noted, social disorganization theory emphasizes the role of adults, particularly parents, in the collective supervision of youth necessary to community order. Families are essential to supervising and socializing youth, as studies that examine the impact of aggregate level family disruption on delinquency rates stress. For instance, Sampson (1987, 1992) argued that parents in stable neighborhoods often assume responsibility for the behavior of area youth, and this shared parenting should lead to lower delinquency rates. Also, Sampson and Groves (1989) found that the effect of family disruption on delinquency is largely mediated by the presence of unsupervised peer groups. Based on these themes, we expect that the shared supervision of children will be a major influence on aggregate rates of unstructured socializing. In particular, we will test whether time use by youth is a function of the overall level of monitoring by all parents, independent of the effect of monitoring by individual parents. In statistical terms, we argue for a contextual effect of parental monitoring on unstructured socializing.

PRESENT STUDY

The present study expands Osgood and colleagues' (1996) individual-level routine activity perspective by extending the notion of unstructured socializing to the aggregate or contextual level. That is, we use multilevel procedures to determine whether the average amount of time adolescents spend hanging out explains variation among groups in rates of delinquency. Multilevel techniques are extremely useful because they allow us to separate the contributions of individual and contextual effects to delinquency. We present three sets of analyses. First, we assess whether the aggregate groups in our data significantly vary in their rates of delinquency and unstructured socializing. Next, we determine whether there are individual- and aggregate-level effects of unstructured socializing on delinquency. Finally, we test whether themes from social disorganization theory can explain variation across aggregates in rates of unstructured socializing.

METHODS

UNIT OF AGGREGATION

Most contextual research is geographic, examining the effects of an area such as a neighborhood on the individuals who live there. The implicit assumption is that individuals living near one another are subject to many of the same social influences. Yet contextual effects may also arise within aggregations defined by other social arrangements such as workplaces, churches and schools.

The aggregate units in our research are sets of students who attend the same school. Though criminologists seldom study schools in multilevel research (for exceptions, see Anderson, 2002; Felson, 1994; Welsh et al., 1999), schools are especially well suited to our interests in peer processes and delinquency. Our theoretical analysis centers on the consequences of a high rate of unstructured socializing in an interacting population of adolescents. It would be most appropriate to choose an aggregate unit that corresponds to a set of adolescents who will meet and interact frequently enough to constitute a pool of potential friends.² Schools serve precisely this function for teenagers in the United States; scholars of education and adolescence have long argued that schools are the fundamental organizational unit of adolescents' social world (Coleman, 1961). Schools bring same-aged adolescents together 5 days a week for 9 months of the

2. Friendship groups or networks would be relevant as well, but they present a much greater problem of self-selection into the aggregate unit.

year. In doing so, schools provide opportunities for friendship formation with a far larger group than is available through neighborhood playmates, parents' friendship networks or participation in organizations such as churches. The dominance of schools for friendship formation can be seen in Ennett and Bauman's (1993) finding that 95 percent of adolescents' friendship ties were with other students attending the same school. The social function of schools also is readily apparent to adolescents themselves. Corsaro and Eder's (1990) review of research on school culture indicates that being with friends is the most salient aspect of school life for adolescents.

This is not to say that schools are the only potential source of friends. No doubt residential proximity is important as well. Yet assignment of students to schools in the United States is primarily on the basis of residential geography, so aggregating students by schools tends to aggregate them by neighborhood as well. Furthermore, Wooldredge (2002) has shown that findings about neighborhood effects are not sensitive to variation in definitions of neighborhoods (such as official designations, census tracts or census block groups). Thus, we expect that our results will be similar to those produced by a neighborhood level analysis.

We want to stress that, though schools define the aggregate populations of adolescents we study, our research is not about the school settings themselves. Our work stands in contrast to the valuable body of research about the effects of school characteristics, such as organization and climate, on delinquency at school (for example, Gottfredson, 2001). Instead, our interests concern processes of interaction (unstructured socializing) that we expect will primarily occur away from schools and have their effects on delinquency outside of school. Our hypothesis about parental monitoring mainly concerns students' activities away from school because schools take responsibility for monitoring students' behavior during school hours. Schools are relevant to our interests simply because it is there that students get to know most of the friends they associate with when they are not at school. If our hypotheses are correct, the social processes we have specified will produce differences in rates of delinquency across groups defined by which schools adolescents attend, even though those processes do not occur at the school.

SAMPLE

The data for these analyses were gathered as part of an evaluation of a school based gang prevention program (Esbensen and Osgood, 1999). Though some of the schools had serious gang problems, most did not. Rates of gang membership ranged from 3 to 26 percent, and fewer than 12

percent of students were gang members at two-thirds of the schools. The sample consists of 4,358 eighth grade students from thirty-six schools in ten cities. The analyses omit six schools from the larger study, two that lacked school identifiers and four for which there were too few respondents to represent the school adequately ($N < 35$ per school). The sample sizes for the included schools ranged from 35 to 368. The data come from questionnaires completed in classrooms under the supervision of research staff, when teachers were not present. Response rates averaged well over 90 percent.³ The size of our sample of individuals gives us abundant statistical power for studying relationships at the individual level, while the size of our sample of schools provides only moderate statistical power for studying aggregate level relationships. Standard errors for aggregate level relationships were roughly three to ten times as large as those for comparable individual-level relationships.

The schools in this analysis are not systematically representative of the nation or any other specific population. Even so, it is a useful sample for our purposes because it is highly diverse at both the individual and aggregate levels. Where most multilevel studies are limited to a single metropolitan area or state, these schools are widely dispersed across the United States. The ten cities included many regions of the country, large metropolitan areas and small towns, middle class suburbs and poor inner cities. There is a substantial representation of Asian (6 percent), black (25 percent) and Hispanic (16 percent) race/ethnicity groups. Only a minority of the students are white (44 percent). Over one-third live with a single parent or in some other non-traditional living arrangement. Educational levels appear relatively high, with 42 percent of the students having parents who are college graduates. This may be somewhat misleading, however, in that this coding reflects the higher of the two parents' education. It is also clear from the pattern of relationships with other variables that the students whose parents have less education are more likely to be among the 12 percent of respondents who did not respond to this question.

It is especially useful for this analysis that there are sizable differences between our aggregate units, which are the 8th grade cohorts of the schools. As can be seen in the lower portion of Table 1, variation in sex composition is limited, as would be expected in the United States. Yet, the de facto ethnic and class segregation of American communities and schools creates large differences on other factors. In terms of

3. Despite this high response rate, it is still possible that the sample's overall rate of delinquency may be biased downward due to truancy of more delinquent youth. This pattern would also attenuate variation in aggregate rates of delinquency, which would tend to mitigate against our hypotheses.

race/ethnicity, these schools varied from a low of 3 percent minority students to a high of 97 percent; in terms of family structure, they varied from a low of 9 percent of students living with two parents to a high of 73 percent; and in terms of parents' education, they varied from a low of only 39 percent graduating from high school to a high of 65 percent completing college.⁴ Clearly there is substantial diversity among these aggregate units, which is essential for meaningful analysis of aggregate level relationships.

Table 1. Descriptive Statistics

	Mean	Std. Dev.	Min	Max
Individual-level (N = 4359 Students)				
Hours in Unstructured Socializing	7.48	11.11	0	49
(Square Root)	2.05	1.81	0	7
Self-Reported Delinquency (IRT)	.10	.88	-1.02	3.79
Demographic Variables				
Female	.52	.50	0	1
Black or Hispanic	.41	.494	0	1
Age	-.20	.58	-1	1
Not Living with Two Parents	.36	.48	0	1
Parent's Education	2.40	.59	1	3
Prevention Program Participant	.44	.49	0	1
Other Explanatory Variables				
Dangerous School Environment	2.65	.60	1.11	5
Limited Educational Opportunities	1.85	.74	1	5
Commitment to School Success	3.59	.77	1	5
Attachment to Parents	4.70	1.23	1	7
Parental Monitoring	3.76	.81	1	5
Impulsivity	2.83	.75	1	5
Risk Seeking	3.05	.95	1	5
Social Isolation	2.43	.95	1	5
School Level (N=36 Schools)				
Hours in Unstructured Socializing	7.94	2.19	4.19	12.81
(Square Root)	2.11	.35	1.44	2.86
Proportion Female	.52	.07	.33	.66
Proportion Black or Hispanic	.56	.32	.03	.97
Not Living With Two Parents	.58	.18	.09	.73
Parent's Education	2.30	.23	1.75	2.68
Parental Monitoring	3.68	.19	3.09	3.99

4. Note that, compared to the individual-level means in Table 1, the school level means indicate higher proportions of African American and Latino students and students not living with two parents. This pattern arose because these groups were concentrated in schools from which we had smaller samples while white and Asian students and students living with two parents were concentrated in schools from which we had larger samples.

MEASURES

A single item specifically tailored to match our theoretical framework measured the primary explanatory variable of interest, unstructured socializing with peers in the absence of authority figures. The item asked, "In an average week, how many hours do you spend hanging around with your current friends, not doing anything in particular, where no adults are present?" Respondents reported spending a mean of 7.48 hours per week in this fashion (S.D. = 11.11). The relationships of the measure to other variables are consistent with the correlates of unstructured socializing reported by other authors (for example, Osgood et al. 1996), which supports the measure's construct validity. The usual alpha reliability cannot be computed for a single item measure, but we were able to compute a test-retest reliability of .48 over a period of approximately three months, using a different data set (the first two waves of data described by Esbensen, Osgood, Taylor, Peterson and Freng, 2001). This is only slightly lower than the test-retest reliabilities of .53 to .69 for the eight multiple-item measures used in our analyses (as individual-level control variables, described below), which had alpha reliabilities of .66 to .87.⁵ Thus, relying on a single item does not seriously limit the reliability of this measure of unstructured socializing.

Though the open response format of this item is appealing because it uses the concrete metric of hours, the format also presents special issues that must be addressed. First, research on self-reported offending shows that there is greater error of measurement for high values of open format responses than low values (Huizinga and Elliott, 1986). Furthermore, like almost all ratio scales (measures with a meaningful zero value), these responses are highly skewed. Twenty six percent of respondents reported less than one hour per week of unstructured socializing, the median response was 3 hours per week, and sixteen respondents (.4 percent) reported more than 150 hours per week.

We took several steps to address these issues and to insure that our results would not be unduly influenced by extreme responses (Judd and McClelland, 1989). First, the respondents reporting more than 150 hours per week of unstructured socializing were excluded from the analysis. These responses implied from 21 to over 35 hours per day spent hanging out with friends, which is impossible given the reality of 24 hours in a day and the necessity of sleeping, going to school, and so forth. Second, we were skeptical that there were meaningful distinctions among the 2.4 percent of respondents who reported 50 to 150 hours of unstructured

5. Test-retest reliability treats genuine change over time as error, so this index is almost always lower than alpha.

socializing per week. We suspected that all 8th graders who report that they hang out with friends from 7 to 21 hours a day are simply indicating that they spend virtually all of their free time this way. Preliminary analyses supported this supposition, indicating higher levels of deviance for this group than for respondents who reported less unstructured socializing, but no meaningful distinctions on outcomes across this range of unstructured socializing. Therefore, these responses were recoded to 49 hours a week, reducing the potential influence of the most extreme scores. Finally, we transformed the metric of the measure both to reduce skewness and, on conceptual grounds, to place less emphasis on differences in the high range of the scale (such as 40 versus 45 hours) than on differences in the lower range (such as 0 versus 5 hours). A square root transformation was used in analyses where unstructured socializing served as an explanatory variable, and a similar logarithmic transformation is inherent in the Poisson analysis used when unstructured socializing served as a dependent variable. The original measure produced results comparable to those reported below. The findings are stronger for the transformed measure, however, because it had linear relationships to other variables where the original measure did not.

The dependent variable of primary interest is a seventeen-item index of self-reported delinquency (see Appendix). These seventeen items cover a range of delinquent events, including property and violent delinquency, status offending, drug sales and minor offending. The format of the questions asked respondents for the number of times each offense was committed in the "last 12 months." We computed delinquency scores using the item response theory (IRT) scaling methods described in detail by Osgood, McMorris and Potenza (2002). IRT scaling is especially advantageous for the highly skewed items that comprise most measures of deviance. This approach uses link functions, comparable to those in generalized linear models (McCullagh and Nelder, 1989), to translate the discrete categories of the response scale to a shared dimension that is continuous and equal interval. Our IRT scoring employed Samejima's (1969) graded response model, which is based on the same link function as ordinal logistic regression.⁶ This approach makes full use of all ordinal information in every item, and it produces a measure with an approximately normal distribution.

The analyses include statistical controls for five demographic variables, participation in the gang prevention program, and eight other individual-level variables. The first demographic variable is sex, coded as male = 0,

6. Because this IRT model requires a limited set of ordered response categories, we classified these open-format responses into the seven categories of 0, 1, 2, 3, 4 or 5, 6-10, and 11 or more.

female = 1. Preliminary analyses indicated that two dummy codes captured the differences in delinquency among racial and ethnic groups. Levels of offending were similar for whites and Asians, who were combined as the reference group. One dummy variable denoted black and Hispanic respondents, who also had similar rates of delinquency. The second dummy variable combined the remaining 9 percent of respondents, including members of other race/ethnicity groups, respondents of mixed race/ethnicity, and respondents who did not provide data on race/ethnicity. We capture the minimal age variation in this sample of eighth grade students with a variable coded as 0 for 14-year-olds, -1 for younger respondents, and +1 for older respondents. The measure of family structure distinguishes those who lived with two parents (coded 0) from those who did not (coded 1). Preliminary analyses indicated that differences in rates of delinquency were best captured by distinguishing three levels of parental education: 1 = less than high school graduation, 2 = high school graduation or GED, 3 = college graduation.⁷

To ensure that our results were not inadvertently affected by the presence of the gang prevention program in these schools, we included program participation as an additional control variable. Evaluations of this program indicate modest beneficial effects on measures relevant to delinquency, with a standardized effect size of approximately .10 (Esbensen and Osgood, 1999; Esbensen et al., 2001). There was little potential for this variable to affect the differences among schools that are our major focus, however, because roughly half of the students at each school participated in the program.

The eight other individual-level variables concern school (dangerousness of the school environment, perceptions of limited educational opportunities and commitment to school success), family (attachment to parents and parental monitoring), and personality (impulsivity, risk seeking and social isolation). For more information about these measures, see Esbensen and Osgood (1999).⁸ The measure of

7. The analysis was limited to cases with valid data for both delinquency and unstructured socializing. Cases missing data on other variables were retained in the analysis by either imputing mean values (for most variables) or treating missing data as an additional dummy coded category (for sex, race/ethnicity and family structure). For age and parents' education, analyses included dummy variables indicating missing data, which insures that coefficients are based solely on the cases with valid data. Missing data were rare for the eight additional explanatory variables (fewer than 2 percent of cases), so this step was not necessary for those variables.

8. Scores for these measures were means across the items. Because none of these measures were seriously skewed, there was no need for the more complex item response theory scaling applied to self-reported delinquency.

parental monitoring plays the largest role in our analyses. This four-item measure, which has an alpha reliability of .70, asks how well parents are informed about the respondent's whereabouts and associates. The four items, which were scored on a 1–5 scale (strongly disagree to strongly agree), were: when I go someplace, I leave a note for my parents; my parents know where I am when I am not at home or school; I know how to get in touch with my parents if they are not home; and my parents know who I am with if I am not home. Note that we chose not to control for measures of attitudes about deviance and friends' delinquency, which are available in this data set. We did not consider such measures appropriate as control variables because (1) they are conceptually more proximal to delinquency, so controlling for them could remove true effects of unstructured socializing and parental monitoring; (2) they are especially likely to have reciprocal causal relationships with delinquency; and (3) groups' means for peer delinquency are not conceptually distinct from their rates of delinquency.

RESULTS

Our analyses used Raudenbush and Bryk's (2002) hierarchical linear modeling technique (HLM), which is a good match to our multilevel research design and to our interest in separating individual-level and context effects.⁹ We applied the standard linear version of HLM in analyzing delinquency.¹⁰ In models where unstructured socializing was the dependent variable, we used the Poisson extension of HLM and allowed for overdispersion. The Poisson distribution is well suited to this positively skewed variable, which is limited to nonnegative integers. Because our

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9. In all analyses, all explanatory variables are grand mean centered. Doing so is useful for maintaining a consistent meaning for the estimates of aggregate level variance when models include random coefficients (Raudenbush and Bryk, 2002). Individual-level relationships were treated as randomly varying across groups when this was indicated by likelihood ratio tests, chi-square tests described by Raudenbush and Bryk (2002:64), and discrepancies between conventional and robust standard errors. Tables indicate which coefficients have random variance components.
 10. Osgood, Finken and McMorris (2002) recommended Tobit regression to address the limited distribution of self-reported delinquency scores that results from having a large group of respondents who report that they committed none of the offenses. Tobit regression is not available in the HLM framework, but fortunately the delinquency scores are less severely limited in this data set than most, with only 18 percent of respondents reporting zero offenses. Furthermore, our analyses do not focus on interactive or curvilinear relationships, where a limited distribution is most likely to distort results (Osgood, et al., 2002). Considering these factors, plus the optimal scale transformation inherent in the IRT scoring, the standard linear version of HLM is adequate for this measure.

research questions concern aggregate rates of delinquency and unstructured socializing, we report population average effects. We also base our significance tests on robust standard errors, which protect against misspecification of variance components (Raudenbush and Bryk, 2002).

IS THERE SIGNIFICANT VARIATION AMONG GROUPS?

The focus of the present study is on variation among groups in both the average amount of time spent in unstructured socializing and the average rate of delinquency. Thus, the first step in our analysis is to determine whether there is a significant amount of aggregate level variation to be explained. Table 2 addresses this question using "null" HLM models that do not attempt to explain variation in the dependent variable, but rather partition the overall variance into the two levels of analysis. As is virtually always the case in contextual analyses, variation within groups is far greater than variation between groups. Even so, Table 2 shows that mean levels of both unstructured socializing and delinquency vary across groups more than would be expected by chance alone, given levels of variation within groups.

Table 2. HLM Estimates of Variance within and between Schools

	Variance Component	Percent of Total	χ^2	df	p-value
Delinquency					
Individuals within schools	.741	95.1			
School means	.038	4.9	250.69	35	.000
Reliability .82					
Unstructured Socializing					
Individual overdispersion	15.758				
School means	.045		118.87	35	.000
Reliability .67					

Note: The analysis for delinquency is a standard linear hierarchical model, while the analysis for unstructured socializing is a nonlinear, overdispersed Poisson hierarchical model.

For delinquency, variation across groups in mean levels accounts for 4.9 percent of the total individual-level variance. Though this may seem a small proportion, it corresponds to substantial differences between groups. The group-level variance component of .038 indicates that the standard deviation of the true group means (adjusted for variation due to chance) is .195. The HLM model assumes that these means are normally distributed, which implies that 68 percent should fall within one standard deviation of the grand mean, a range of .390, and 95 percent should fall within two standard deviations, a range of .780. Considering that the individual-level standard deviation of this measure is .88, these figures indicate that overall levels of delinquency are considerably higher for youth attending some schools than for those attending others.

The Poisson HLM model does not incorporate an individual-level variance component in the usual sense, so it is not possible to divide the total variance in unstructured socializing between individual and aggregate levels. Therefore, the aggregate level variance component deserves careful consideration. This model has a logarithmic metric, and the natural logarithms of the group means are assumed to be normally distributed around the grand log mean, with a standard deviation equal to the square root of the between-group variance. Table 3 demonstrates the implications of these assumptions and results. The first row shows the log values while the second row shows the corresponding mean values. These results indicate that 95 percent of group means for unstructured socializing fall in the range between 4.85 hours per week and 11.36 hours per week. In other words, students attending some schools spend well over twice as much time in this activity as students attending others.

Table 3. Magnitude of School Differences in Unstructured Socializing, as Implied by Poisson HLM Results

Expected Ranges	95% of Schools				
	68% of Schools				
			Mean		
Natural Log of Expected Means	1.58	1.79	2.01	2.22	2.43
Expected Means	4.85	5.99	7.48	9.24	11.36

EXPLAINING AGGREGATE RATES OF DELINQUENCY

Having established significant variation across groups on the key variables, we turn to our central question. Does unstructured socializing contribute to variation among groups in rates of delinquency? To separate individual and contextual processes, both the individual and the group average measure of unstructured socializing must be included as explanatory variables in the regression model (Raudenbush and Bryk, 2002:134-142). The coefficient for the individual score indicates the increase or decrease in delinquency associated with a student being one unit higher on time spent in unstructured socializing. This individual-level process has implications at the aggregate level. The coefficient also represents the amount of change this process generates for an entire student body's mean level of delinquency, given a one unit difference in their group mean for unstructured socializing. The coefficient for the mean on unstructured socializing reflects a second effect of being in a population with more unstructured socializing. This additional relationship

applies to all members of a population, regardless of their own time use. The total contribution of unstructured socializing to mean levels of delinquency is the sum of the individual and contextual coefficients.

The results in Table 4 provide strong evidence of both individual and context effects of unstructured socializing on delinquency. Whether we control for only the demographic variables or for the eight individual-level explanatory variables as well, both individual scores and group means for unstructured socializing were significantly associated with delinquency. To gauge the strength of those relationships as they pertain to rates of delinquency, we standardized the coefficients in terms of the standard deviations of group means.¹¹ The combined standardized effect (individual plus context) of unstructured socializing was substantial— $.520$ in the first model and $.327$ in the second. The magnitudes of the individual and context effects were similar in both models.

The first model in Table 4 estimates the relationships of interest, controlling for age, sex, race/ethnicity, family structure, parents' education and program participation. The demographic composition of schools was strongly related to the rates of delinquency of the students who attended them. Comparing the group level variance before controlling for these demographic variables ($.038$, Table 2) with the group level variance after controlling for them ($.013$, Table 4) shows that these five demographic factors accounted for about two-thirds of the variance in delinquency across groups. Yet the relationship of unstructured socializing with delinquency was robust after controlling for these variables, and it explained 54 percent of the remaining variance in group means.

By adding eight individual-level explanatory variables, the second model goes beyond adjusting for population composition to controlling for causal processes associated with several alternative theoretical perspectives. This is a more extreme step in that these variables are not necessarily causally prior to or entirely conceptually distinct from unstructured socializing. Thus controlling for these factors provides a very

11. In other words, we multiplied the unstandardized coefficient by the standard deviation of group means on the explanatory variable and divided it by the standard deviation of group means on the dependent variable. The square root of the variance component for group means from the null HLM model provided the standard deviation for the dependent variable, making the standardized coefficient consistent with calculations for explained variance. Note that this calculation gives very different results than the usual individual-level standardization, which greatly deflates the context effect relative to the individual-level effect (due to the much lower variance of group means than individual scores). Because the two unstandardized coefficients have the same meaning in relation to group means, the differential adjustment resulting from individual-level standardization would not suit our aggregate level research questions.

strict test of individual and context effects of unstructured socializing.¹² As the second column of Table 4 indicates, both the individual and context effects remained statistically significant. Interestingly, though adjusting for these other explanatory variables considerably reduced the individual-level effect of unstructured socializing, it had less impact on the context effect.

Table 4. Effect of Unstructured Socializing on Delinquency: Results from HLM

	Model 1 Demographic and Demographic Variables ^a	Model 2 Explanatory Variables ^b
Individual-level Effect of Unstructured Socializing		
Unstandardized Coefficient	.164*	.084*
Standard Error (Robust)	(.011)	(.009)
Standardized Coefficient, School Level	.296*	.152*
Context Effect of Unstructured Socializing		
Unstandardized Coefficient	.124*	.097*
Standard Error (Robust)	(.036)	(.037)
Standardized Coefficient, School Level	.224*	.175*
Residual Variance		
Without Unstructured Socializing		
Individuals within Schools	.664	.429
School Means	.013*	.012*
With Unstructured Socializing		
Individuals within schools	.567	.404
School Means	.006*	.009*
Variance Explained by Unstructured Socializing:		
Proportionate Reduction in Error		
Individuals within Schools	.146	.058
School Means	.539	.250

* $p < .05$

^a This model includes random effects for unstructured socializing, sex, Black or Hispanic race/ethnicity, and parents education.

^b This model includes random effects for unstructured socializing and sex.

Note: Unstructured socializing coded as the square root of the number of hours per week.

These analyses produced several indications that, among the variables in our analysis, unstructured socializing was uniquely important for aggregate rates of delinquency. For both versions of the analysis, unstructured socializing accounted for a substantial share of the variation in rates of delinquency that remained after controlling for other variables (54 percent and 25 percent). Yet Table 4 shows that the eight other individual-level variables explained virtually none of the aggregate

12. With only thirty-six schools, there were not enough degrees of freedom to include context effects for all demographic and individual-level variables. We address their contribution below through multiple coefficient Wald tests comparing models with and without those context effects.

variation. They account for only 7 percent of the group level variance remaining after controlling for demographic factors (but not controlling for unstructured socializing; Level 2 residual variance or $\tau = .012$ versus $\tau = .013$) and they increased group level residual variance by 33 percent relative to a model controlling for both demographic factors and unstructured socializing ($\tau = .006$ versus $\tau = .009$). This contrast between unstructured socializing and the other individual-level variables is especially striking in light of the considerable success of those measures in explaining delinquency at the individual level. They accounted for 35 percent of the individual-level variance remaining after controlling for the demographic variables ($\sigma^2 = .429$ versus $\sigma^2 = .664$) and 29 percent of the variance remaining after controlling for both the demographic variables and unstructured socializing ($\sigma^2 = .404$ versus $\sigma^2 = .567$).

Furthermore, unstructured socializing was the only variable in the analysis with a substantial context effect. Although the average rate of unstructured socializing affected all students attending the same school, there was no such effect for any of the demographic variables or explanatory variables. Demographic composition accounted for much of the variation in rates of delinquency, but this was strictly an aggregation of the individual-level relationships (compositional effect). Context effects for the demographic factors did not significantly contribute to delinquency, whether we controlled for unstructured socializing ($\chi^2 = 1.56$, 5 df, $p > .5$) or not ($\chi^2 = 2.30$, 5 df, $p > .5$). These findings indicate, for instance, that respondents who attended school with a higher proportion of male students had higher rates of delinquency because they were mostly males themselves, not because being surrounded by males raised the delinquency of females. Similarly, the eight other explanatory variables, as a group, did not have significant context effects on delinquency (controlling for unstructured socializing $\chi^2 = 4.28$, 8 df, $p > .5$; without that control, $\chi^2 = 6.07$, 8 df, $p > .5$).

In sum, these results strongly support our prediction that a populations' level of unstructured socializing would be associated with its rate of delinquency. This aggregate relationship was substantial, it entailed both an individual-level compositional effect and a contextual effect, and there was no comparable relationship for any of the other variables in the broad set included in our analysis.

EXPLAINING AGGREGATE LEVELS OF UNSTRUCTURED SOCIALIZING

These findings support our contention that the opportunity processes highlighted by a routine activity perspective on individual offending contribute to aggregate rates of delinquency. We now turn to the task of

explaining aggregate differences in unstructured socializing. It is here that our routine activity perspective intersects social disorganization theory, by positing a structural rather than normative mechanism by which peer groups contribute to delinquency (for example, Sampson and Groves, 1989). Social disorganization theory informs the routine activity perspective by suggesting that certain social control processes could account for variation across groups in rates of unstructured socializing.

Social disorganization is a broad and complex theory. We concentrate on a feature that should be especially relevant to unstructured socializing, namely, shared parental involvement in the socialization and supervision of children. Social disorganization theorists portray shared parental involvement as an essential aspect of community level social control processes (Sampson, 1992). In this study, shared parental involvement would be reflected by a context effect of parental monitoring. We therefore tested whether adolescents spent more time in unstructured socializing when there was little parental monitoring of the other students at their school.

We investigated individual-level and contextual effects on unstructured socializing through two overdispersed Poisson HLM models. The first incorporated only the demographic variables, and the second added the eight explanatory variables, which included parental monitoring. Results appear in Table 5. The first model indicates that the amount of time spent in unstructured socializing with peers was higher among males, older students and students who did not live with two parents. The sex and age differences are consistent with the findings of Osgood et al. (1996).

As the second model of Table 5 indicates, individual-level explanatory variables from several domains were associated with unstructured socializing. Significant predictors of higher rates of unstructured socializing included perceiving one's educational opportunities as less limited (a counterintuitive finding), being less committed to succeeding at school, being less closely monitored by parents, and having a stronger tendency toward risk seeking.

Turning to the central question of our analysis of unstructured socializing, the context effect we hypothesized based on social disorganization theory emerged quite clearly. The standardized effect of mean levels of parental monitoring on mean levels of unstructured socializing was $-.746$, indicating a very close association at the aggregate level. This estimate controlled for the monitoring of individual respondents by their own parents, so it is limited to the emergent phenomenon of aggregate-level social control specified by social disorganization theory. Thus students spent less time in unstructured socializing with peers if they attended a school where most parents were

well informed about their children's whereabouts and associates, even if their own parents were not.

Table 5. Explaining Rates of Unstructured Socializing at the Individual and School Levels: Results from an Overdispersed Poisson HLM analysis

Variables	Demographic ^a			Demographic & Explanatory ^b		
	Coeff	S.E.	Std Coeff	Coeff	S.E.	Std Coeff
Individual-level						
Female	-.214*	(.034)	-.071*	-.057	(.046)	-.019
Black or Hispanic	-.132	(.078)	-.198	-.069	(.070)	-.104
Age	.092*	(.040)	.062*	.044	(.038)	.029
Family structure: Sole parent	.162*	(.049)	.139*	.100*	(.045)	.086*
Parent's Education	-.033	(.037)	-.036	.055	(.033)	.061
Dangerous School Environment				.026	(.042)	.024
Limited Educ Opportunities				-.102*	(.032)	-.080*
Commitment to School Success				-.229*	(.035)	-.154*
Attachment to Parents				-.046	(.030)	-.051
Parental Monitoring				-.124*	(.029)	-.111*
Impulsivity				-.034	(.038)	-.021
Risk Seeking				.280*	(.030)	.279*
Social Isolation				-.034	(.019)	-.028
Context Effects (School Means)						
Parental Monitoring				-.837*	(.207)	-.746*
Constant	2.055*	(.046)		1.971*	(.037)	
Residual Variance						
Overdispersion		15.136			13.210	
School Means		.047*			.019*	
Explained Variance (R ²)						
School Means			-.049		.596	

* $p < .05$

^a This model includes random effects for black or Hispanic race/ethnicity.

^b This model includes random effects for black or Hispanic race/ethnicity, dangerous school environment, parental attachment, and impulsivity.

Of all the relationships studied in this analysis, the context effect of parental monitoring was uniquely important for explaining rates of unstructured socializing. This effect accounted for 45 percent of the total between-group variance (Level 2 $R^2 = .588$ for Model 2 of Table 5 versus Level 2 $R^2 = .135$ for a model with all individual-level variables). In contrast, the demographic variables did not explain any of the between-group variation in unstructured socializing¹³ and all individual-level variables combined explained only 14 percent of that variation (null model versus a model with all individual-level variables). Furthermore, after controlling for parental monitoring, no other variables had

13. The negative R^2 for this model in Table 5 indicates that controlling for these variables increased rather than decreased the variation among groups. Of course these measures did explain variation among individuals within groups, as reflected by the decrease of the overdispersion index.

significant context effects on unstructured socializing (for demographic variables, $\chi^2 = 4.39$, 5 df, $p > .24$; for the other explanatory variables, $\chi^2 = 7.00$, 7 df, $p = .43$).

UNSTRUCTURED SOCIALIZING AS A MEDIATOR?

Our conception of the relationship between routine activities and social disorganization suggests that unstructured socializing should mediate the aggregate-level relationship between parental monitoring and delinquency. Unfortunately, this data set does not provide a good test of that hypothesis because the context effect of parental monitoring was not significant, even before including the mediating effect of unstructured socializing (unstandardized coefficient = $-.177$; S.E. = $.141$). The sample of thirty-six schools was sufficient for the relatively strong direct effects of parental monitoring on unstructured socializing and of unstructured socializing on delinquency to be statistically significant. There is little power to detect an indirect effect produced by these relationships, however, because it is the product of the two direct effects, which is a considerably smaller value. Even so, the pattern of results was consistent with mediation. Controlling for unstructured socializing accounted for virtually all of the context effect of parental monitoring on delinquency (unstandardized coefficient = $-.024$; S. E. = $.130$).¹⁴

DISCUSSION

This article extends Osgood et al.'s (1996) routine activity theory of individual offending in order to explain aggregate rates of delinquency. They argued that situations conducive to deviance are especially prevalent during unstructured socializing with peers away from authority figures. We reasoned that, if some populations engage in more of this unstructured socializing than others, the individual-level opportunity processes Osgood et al. identified should also produce aggregate differences in rates of offending. We further predicted that high aggregate rates of unstructured socializing would increase opportunities for offending for all adolescents in that group, producing an emergent or contextual effect. The findings presented above give clear support for this position. Significant individual and context effects combine to produce a strong association between mean levels of unstructured socializing and delinquency. In fact, this use of time was much more

14. These coefficients for aggregate parental monitoring come from models of delinquency that control for all other demographic and explanatory variables.

closely associated with these aggregate differences than were a variety of measures concerning school, parents and personality.

The findings also support our contention that this routine activity explanation complements and informs social disorganization theory. Specifically, we found a strong context effect of parental monitoring on unstructured socializing. Thus, the shared parenting processes emphasized by social disorganization theory are closely associated with the type of time use that Osgood et al. (1996) argued is conducive to deviance. When more parents are well informed about their adolescents' activities, all adolescents will spend less time hanging out, and thus encounter fewer opportunities for deviance. The social disorganization perspective enhances the routine activity perspective by explaining why some groups have higher rates of unstructured socializing than others. In turn, our routine activity approach accounts for the prominent finding that the presence of unsupervised peer groups mediates the effects of social disorganization processes on delinquency (Sampson and Groves, 1989). Our structural explanation of this link has considerable advantages over viewing those peers as a source of normative influence, which introduces the conceptual and methodological difficulty of disentangling peer norms from aggregate rates of delinquency.¹⁵

A productive avenue for future research would be to trace further the place of routine activities in the chain of variables specified by social disorganization theory. Doing so would call for examining context effects of both structural variables, such as residential mobility and ethnic heterogeneity, and systemic variables, such as private and parochial networks (Bursik and Grasmick, 1993) and collective efficacy (Sampson, Raudenbush and Earls, 1997).

Schools proved to be an effective basis for defining groups of adolescents when studying aggregate rates of delinquency. Schools are a dominant institution in adolescents' lives and provide the primary setting for forming friendships. For theoretical issues concerning peer association, the school is a key marker of the realm of available associates. The success of our analysis supports our contention that the school is a natural choice for the aggregate unit in analyzing the role of peer processes in contextual effects on delinquency.

It is worth noting that we lack evidence that the relationships we found are causal. It remains possible that they could be due to other variables not included in our analysis. Also, like almost all multilevel studies of aggregate offending, our analysis is cross sectional. It would be worthwhile for future research to investigate these themes with alternative research designs.

15. Despite these difficulties, it remains possible that a normative explanation would be correct. We did not test for a normative effect.

Our findings add to a growing body of evidence showing the value of Osgood et al.'s (1996) micro-level version of the routine activity perspective. Studies investigating the relationship of time use to a variety of outcomes have consistently found that rates of deviant behavior are higher among adolescents and young adults who spend more time in unstructured socializing with peers, away from authority figures (for example, Agnew and Peterson, 1989; Hawdon, 1996; Hundleby, 1987; Junger and Wiegersma, 1995; Osgood et al. 1996; Riley, 1987; Wallace and Bachman, 1991). Those studies demonstrated the association for delinquency, alcohol use, marijuana use, use of other illicit drugs, and dangerous driving. Osgood et al.'s (1996) fixed effects analysis demonstrated that the effect of unstructured socializing holds even with very strong controls for other individual differences factors, and Haynie and Osgood (unpublished) showed that it is not attributable to associating with delinquency of peers. The key relationship underlying Osgood and colleagues' (1996) individual-level version of routine activity theory is robust and reliable.

An especially valuable aspect of the routine activity perspective is that patterns of time use provide a potential explanatory bridge between the social structure and individual deviant behavior (Cohen and Felson, 1979). From this point of view, larger social forces impinge in ways that shape the mundane activities of everyday life, which in turn provide varying opportunities for deviance. Accordingly, Osgood and his colleagues (1996) found that time spent in unstructured socializing could explain much of the relationship of deviant behavior to age, sex, and social class. The present study has pursued this theme in a new direction, asking whether activity patterns can account for aggregate differences in delinquency across social groups. We have found the routine activity perspective especially valuable in this regard. In addition to the connection between individual time use and offending revealed by previous research, aggregate rates of unstructured socializing increased delinquency regardless of individual time use. In combination, these two processes produce a robust connection between activity patterns and delinquency at the aggregate level. We believe that the routine activity perspective in general, and Osgood's and his colleagues' (1996) variation of it in particular, are useful additions to the theoretical repertoire of criminology, and we encourage others to explore their utility in future research.

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APPENDIX

MEASURE OF SELF-REPORTED DELINQUENCY

Response format for each item:

Have you ever . . .

1. No
2. Yes

If yes, how many times in past 12 months ____ Times

Items

1. Skipped classes without an excuse?
2. Lied about your age to get into some place or to buy something?
3. Avoided paying for things such as movies, bus or subway rides?
4. Purposely damaged or destroyed property not belonging to you?
5. Carried a hidden weapon for protection?
6. Illegally spray painted a wall or a building?
7. Stolen or tried to steal something worth less than \$50?
8. Stolen or tried to steal something worth more than \$50?
9. Gone into or tried to go into a building to steal something?
10. Stolen or tried to steal a motor vehicle?
11. Hit someone with the idea of hurting them?
12. Attacked someone with a weapon?
13. Used a weapon or force to get money or things from people?
14. Been involved in gang fights?
15. Shot at someone because you were told to by someone else?
16. Sold marijuana?
17. Sold other illegal drugs such as heroin, cocaine, crack or LSD?