**Neighborhood Street Activity and Exposure to Violence Among Urban Adolescents**

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Exposure to violence among urban youth has become a focus of increasing concern among researchers interested in the health and well-being of children and adolescents. Extant research has linked witnessing violence with a number of detrimental mental health outcomes, including internalizing problems (Flannery, Wester, & Singer 2004), externalizing problems (Buckner, Beardslee, & Bassuk 2004), and post-traumatic stress disorder (Buka, S.L., Stichick, T.L., Birdthistle, I., Earls, F.J. (2001) as well as substance abuse (Vermeiren et al. 2003) and subsequent violence perpetration (Flannery, Wester, & Singer 2004). Consequently, understanding the origins of differences in the likelihood of violence exposure has important implications for policies aimed at improving urban health.

In the current analysis, we focus on the role of street activity—i.e., the prevalence of neighborhood streets with people present—in promoting or controlling violent activity to which younger adolescents may be exposed. Despite decades of theoretical attention to the role of street activity in the social control of violence, no study has systematically investigated the impact of neighborhood differences in the prevalence of active streets for rates of violence and violence exposure among youth. We test alternative models of street activity effects with recently available data from the Project on Human Development in Chicago Neighborhoods (PHDCN). The PHDCN provides some of the first systematically collected videotape data on the social and physical conditions of a larger urban setting. In combination with separately collected neighborhood level data on informal social control and anonymity, these data provide an unprecedented opportunity to address longstanding questions regarding the influence of street life on the well-being of urban youth.

**Background**

"The street" has long been vilified as the origin of urban vice; a locale in which deviant inclinations are cultivated, expressed, and transmitted (Lofland 1998). Progressive era reformers often sought to protect youth from the street and street life, viewing this public arena as a fundamental source of unconventionality and corruption (Jacobs 1961). In response, mid 20$^{th}$ century Modernist architects and urban planners (most notably, Le Corbusier [1925]) envisioned the wholesale restructuring of urban physical space with the goal of eradicating the perceived chaos of the street.

This powerful current of distrust surrounding the urban street was fundamentally challenged with the publication of Jane Jacobs' (1961) classic *The Death and Life of Great American Cities*. Overturning the prevailing Modernist-inspired architectural and urban planning approach to community design, Jacobs emphasized the positive aspects of organically developing neighborhoods—a mix of old and new structures, short streets, dense population, and small retail establishments were hypothesized to promote ongoing

and spatially distributed street activity. In turn, Jacobs' viewed pedestrian traffic as a source of local interest, drawing "eyes on the street," neighborhood monitoring, and associated social control benefits, particularly for children and adolescents. At the neighborhood level, however, Jacobs suggests that the effect of street activity is nonlinear. Small clusters of active streets may generate opportunity for victimization at the periphery (where pedestrians spillover into "gray areas" with limited commercial and street activity and correspondingly fewer "eyes"). In this case, the social control benefits provided by the few active streets may be outweighed by enhanced criminal opportunity at the boundaries,

An important and counter-intuitive aspect of Jacobs' model concerns the potentially beneficial role of strangers in street management. In Jacobs' view, strangers are an inevitable feature of street life. Although much street activity will be comprised of neighborhood residents, many residents may be unknown to one another due to the difficulty of knowing or recognizing large numbers of people in highly dense urban environments. Moreover, outsiders may also be drawn to businesses within urban neighborhoods or traverse streets on their way to nearby destinations. The objective is not to reduce the presence of strangers (a goal inspired by an outdated and romanticized notion of the insular, small-town reproduction), but to accommodate or even leverage their presence in a system of street control. Accordingly, Jacobs' model of the social control benefits of street activity does not require social ties or mutual recognition among individuals on the street.

But how does street activity produce social control benefits even when dominated by strangers? As noted, neighborhood streets with a sufficient number of functional destinations that draw pedestrian traffic (residents or strangers) become "interesting" and draw eyes from local residents—in Jacobs' view, the "natural proprietors" of the street. Ongoing activity brings, as a byproduct, consistent monitoring of streets with associated social control benefits. Indeed, individuals on the street may be unknown to one another—and unwilling to actively intervene on each other's behalf—but nevertheless provide the activity necessary to spur monitoring from local residents with a natural interest in street safety. Jacobs does not, however, hold to the pessimistic image of the apathetic stranger. Instead, strangers are seen to be a social control *asset* when sufficient numbers of other pedestrians are also present (cueing the potential for backup if an intervention to prevent a crime is attempted).

Even in the absence of willingness on the part of strangers *or* neighborhood residents to actively control urban streets, however, the prevalence of street activity may still influence the extent of violence in public places. From the standpoint of the potential offender, more street activity is likely to serve as a deterrent to crime (particularly more overt crimes such as violence). Conventional street activity offers a pool of potential witnesses. The actual relationship among individuals on the street is of less concern in this instance than their evaluated potential capacity to witness—and act to control—criminal activity. The probability of witness intervention is an unknown, but is likely to be perceived as increasing as the number of such witnesses increases. Thus, all else equal, street activity is likely to lead to the situationally rational avoidance of offending.

In contrast, a separate current of research, represented most notably by the work of Taylor and colleagues (1988) has emphasized the negative effects of street activity. In this view, the increasing presence of people on urban streets is typically associated with

greater numbers of strangers, offering anonymity for potential offenders and leading to withdrawal of neighborhood residents from engagement in social control activities. Even if outsider pedestrian traffic is "legitimate," it fosters a sense of insecurity and reduces resident's willingness to use public space. The reduction of social control inclinations among neighborhood residents induced by increasing pedestrian traffic is accompanied by enhanced opportunity for victimization. More street activity brings potential offenders and victims together, escalating the risk of crime.

Taylor's approach emphasizes the association between street activity and anonymity in producing the detrimental effect of resident withdrawal from neighborhood monitoring and social control. Presumably, however, the criminogenic effect of street activity would be lessened to the extent that people on the street were known to one another. For Taylor, unlike Jacobs, the presence of strangers is a key moderator of the street activity effect on violence. As anonymity becomes more pervasive, street activity is likely to be increasingly criminogenic.

**Hypotheses**

In this extended abstract, we present the results of tests of the following hypotheses regarding the link between street activity and exposure to violence. The hypotheses correspond to Jacobs' and Taylor's approaches, respectively:

1) The effect of increased street activity at the neighborhood level on the prevalence of violence exposure is nonlinear: at low levels, increasing street activity generates more violence; at higher levels, street activity reduces the prevalence of violence.

2) Increased street activity is associated with higher levels of violence exposure.

**Data**

Our principal analysis sample is drawn from the Project on Human Development in Chicago Neighborhoods (PHDCN) Longitudinal Cohort Survey, a multi-wave sample of children and adolescents nested within 181 Chicago census tracts. We use data on 11 to 16 year olds from waves 1 and 2 of the survey (1995-96 and 1998-99; $N$=1113)

We link data from the PHDCN-LCS to information from the PHDCN Systematic Social Observation (SSO; 1995), from which we draw information on street activity. The SSO methodology was designed to observe various land use, commercial, and other physical and social characteristics of Chicago communities directly through the use of videotape and observer logs (Raudenbush and Sampson 1999). National Opinion Research Center observers drove a sport utility vehicle at five miles an hour down every street within 80 sample "Neighborhood Clusters" (aggregations of 1 to 3 census tracts). A videographer and two observers recorded events and conditions for each block face (one side of a street block), the original unit of observation for the study. A total of 23,816 face blocks were observed and videotaped (an average of 298 per NC). For those variables that were derived from videotapes (as opposed to observer logs), a subsample of

15,141 face-blocks were selected for viewing and coding—the baseline sample from which indicators of people on the street were constructed for the current analysis.[1]

We also use data from the PHDCN Community Survey—an independent (1995) survey of Chicago residents asking respondents to report on various aspects of their neighborhood, including norms supporting activity on behalf of collective goals, including the social control of local youth (collective efficacy) and anonymity among people in public places in the neighborhood. Finally, we use 1990 census data to construct neighborhood structural controls (poverty, residential stability, immigrant concentration, and population density).

**Measures**

Our dependent variable is a three item scale tapping self-reports of exposure to severe violence among adolescents at Wave 2. The three items asked youth respondents whether they had seen "someone attacked with a weapon," "shot at," or "shot" in the last year. Respondents were asked if they had seen these events occur anywhere or in their neighborhood. We consider any last year witnessing of severe violence and witnessing in the respondents neighborhood.

Our key independent variable, street activity, is operationalized as the proportion of sampled face blocks within a tract in which people were present. Although we are principally interested in the presence of adults, we employ the more conservative and encompassing measure to any problems coders may have had distinguishing between adolescents and adults (nevertheless, 86% of census blocks in which people were present were coded as having adults visible, suggesting that street activity is dominated by adults). The mean number of sampled face blocks with people present was .46 (SD = .20).

Additional neighborhood level independent variables include measures of neighborhood disadvantage (including concentrated poverty, residential instability, immigrant concentration, and population density) and a measure of collective efficacy (combining trust and expectations for social control of youth within the neighborhood--see Sampson, Raudenbush, and Earls [1997] for a discussion of the operationalization of this concept). Family and individual level controls are taken from Wave 1 data and include age, sex, race/ethnicity (African American and Latino with white/other as the omitted category), immigrant generation (1$^{st}$ generation, 2$^{nd}$ generation, vs. 3$^{rd}$ generation or higher), family socioeconomic status (an index combining measures of income, parental education, and occupation), family structure (both biological parents vs. all other arrangements), family attachment (an index of items tapping the youth subject's feelings of emotional attachment to and support from parents), parental supervision and monitoring, and a number of controls for prior violence witnessing and participation in delinquency (wave 1 exposure to violence, parent-child violence as measured by the Conflict Tactics Scale (Straus and Gelles 1995), prior deviance of the respondent, and deviance of peers.

[1] Coders participated in intercoder reliability training in which 90 face blocks were independently double-coded. Discussion of differences in coding outcomes was used to revise coding procedures. Subsequently, 10% of the coded face blocks were recoded and checked for comparability, producing over 98% agreement.

**Analytic Strategy**

We use a three-level Rasch model to assess the impact of individual, family, and neighborhood level characteristics on exposure to severe violence among PHDCN youth. The modeling strategy takes into account the non-independence of subjects within neighborhoods and employs a scaling procedure that estimates differences in the severity of the items included (see Raudenbush and Sampson 1999 for a discussion of multilevel Rasch models). The model can be described as follows:

$$\ln\left(\frac{\mu_{ijk}}{1-\mu_{ijk}}\right) = \pi_{jk} + \sum_{p=1}^{P} \alpha_p D_{pijk}$$

$$\pi_{jk} = \beta_{0k} + \sum_{q=1}^{Q} \beta_q X_{qjk} + r_{jk}$$

$$\beta_{0k} = \gamma_{00} + \sum_{s=1}^{S} \gamma_s Z_{sk} + u_{0k}$$

At level 1, the log odds of a yes response to item *i,* for person *j*, in neighborhood *k* are estimated, with $\pi_{jk}$ constituting the average log odds for the omitted item. At level two, the intercept from level one is allowed to vary randomly and modeled as a function of individual and family-level variables (grand mean centered) and a normally distributed error term $r_{jk}$, with mean 0 and constant variance. At level three, randomly varying neighborhood level intercepts $\beta_{0k}$ are modeled as a function of neighborhood level structural predictors, collective efficacy, street activity, and a squared term for street activity capturing nonlinearity in its impact on violence exposure.

**Results**

Table 1 reports the results of four models of exposure to violence. Model 1 includes baseline demographic and family level predictors of exposure to violence, indicating that the odds of a yes response to any given exposure to violence item are significantly elevated for both African Americans and Latinos by comparison with youth of white or other racial/ethnic backgrounds. Older adolescents and boys are also significantly more likely to witness violence, although immigrant generation does not yield a significant effect on violence exposure. Among family predictors, living with two biological parents, family attachment, and supervision all decrease the odds of violence exposure.

Model 2 adds neighborhood structural characteristics to the baseline model. Neighborhood concentrated poverty is positively and significantly associated with violence exposure, above and beyond demographic and family-level controls. A one standard deviation increase in neighborhood concentrated poverty is associated with a

46% increase in the likelihood of exposure to violence. Population density significantly decreases the likelihood of violence exposure (consistent with Jacobs' emphasis on the benefits of density).

Model 3 adds street activity and its square to the model with family, individual, and neighborhood structural characteristics. Although the linear term does not achieve significance, the quadratic term is significant and nontrivial in magnitude. The quadratic term remains a significant predictor of violence exposure (although at somewhat reduced magnitude) in Model 4 with the addition of several controls for prior violence exposure and deviance. Figures 1 and 2 plot the predicted probability of each type of violence exposure by street activity level. Based on coefficients from the Model 4, figure 1 demonstrates the curvilinear pattern of association between street activity and violence exposure for each of the three items. Figure 2 plots predictions from a model comparable to Model 4 of Table 1, but restricting the outcome to experiences of exposure to each of the three types of violence in the respondent's neighborhood of residence (some 60% of reported exposure to severe violence is coded as having been witnessed in the respondent's neighborhood in the PHDCN data). The quadratic effect of street activity is similar in magnitude and significance in these additional analyses. The predicted probabilities plotted in Figure 2 reveal a comparable curvilinear pattern.

In analyses not presented here, we interacted a measure of anonymity at the neighborhood level from the PHDCN-CS (including items asking the respondent how easy it was to pick out outsiders in the neighborhood, how many adults he/she recognized in the neighborhood, and how many children he/she recognized) with the street activity measures in fully specified models of exposure to violence. Although not presented, these analyses are an important component of the research to the extent that they capture the relative impact of street activity in neighborhoods where street activity is dominated by strangers (high anonymity) versus neighbors or neighborhood regulars who know one another (low anonymity). These analyses produced very small an statistically insignificant interaction effects between anonymity and street activity, indicating that the association between street activity and violence exposure is not dependent upon the prevalence of strangers. High levels of street activity function to reduce the prevalence of violence even in neighborhoods where street activity is dominated by strangers.

## Conclusion

Jane Jacobs' insights, first published over 45 years ago, remain relevant today and can serve as the basis for a sophisticated conceptualization of the impact of neighborhood on individual well-being. Jacobs emphasized the importance of street activity (at high levels) for the capacity of communities to manage public space. The results of analyses of exposure to violence among urban youth—an experience that can have significant effects on subsequent health and well-being—reveal a curvilinear pattern between street activity and violence exposure. At low levels, the increasing prevalence of face blocks with people on the street increases the likelihood of violence exposure, potentially consistent with Jacobs' expectation that small clusters of active streets increase the chances of victimization at the poorly monitored periphery. This finding is also consistent with Taylor's emphasis on the convergence of victims and offenders in the absence of effective social control. Beyond a certain threshold, however, increasing

street activity produces beneficial effects on violence exposure among youth, again consistent with Jacobs' expectations.

Finally, an intriguing finding resulted from tests of the interaction between levels of neighborhood anonymity and street activity. The absence of an interactive effect between anonymity and street activity suggests that the form of the association between people on the street and violence exposure functions similarly in high and low anonymity communities. Neighborhoods with high proportions of active streets experience social control benefits from this extensive use of public space whether the individuals present know one another or not. These findings point to the implications of the actual use of space within neighborhoods for health and well-being as an important additional focus of attention beyond commonly examined structural and social capital dimensions of urban neighborhoods.

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**Table 1. Three Level Rasch Models of the Exposure to Severe Violence by Individual, Fam Neighborhood Characteristics**

| Independent Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| *Individual/family level* | | | | |
| Race/ethnicity | | | | |
| African american | .853 *** | .638 *** | .602 ** | .341 * |
| | (.160) | (.157) | (.168) | (.158) |
| Latino | .615 ** | .548 ** | .502 ** | .364 * |
| | (.181) | (.186) | (.188) | (.182) |
| Age | .158 *** | .169 *** | .170 *** | .054 |
| | (.035) | (.035) | (.035) | (.038) |
| Immigrant generation (vs. third) | | | | |
| First | -.399 | -.220 | -.220 | .003 |
| | (.224) | (.242) | (.240) | (.244) |
| Second | -.099 | .023 | .034 | .113 |
| | (.178) | (.185) | (.186) | (.191) |
| Male | .499 *** | .493 *** | .494 *** | .350 ** |
| | (.117) | (.117) | (.116) | (.122) |
| Family socioeconomic status | -.029 | .043 | .045 | .045 |
| | (.045) | (.045) | (.046) | (.045) |
| Two biological parents | -.290 * | -.258 | -.262 | -.132 |
| | (.138) | (.137) | (.137) | (.139) |
| Supervision | -.285 ** | -.302 *** | -.298 ** | -.227 ** |
| | (.083) | (.082) | (.083) | (.080) |
| Family attachment and support | -.540 *** | -.555 *** | -.557 *** | -.202 |
| | (.142) | (.142) | (.141) | (.145) |
| Parent-child conflict | - | - | - | .099 * |
| | | | | (.051) |
| Peer deviance | - | - | - | .094 |
| | | | | (.049) |
| Prior problem behavior | - | - | - | .255 *** |
| | | | | (.064) |
| Wave 1 exposure to violence | - | - | - | .417 *** |
| | | | | (.106) |
| *Neighborhood level* | | | | |
| Disadvantage | - | .430 *** | .421 *** | .390 *** |
| | | (.072) | (.070) | (.076) |
| Residential stability | - | -.079 | -.052 | -.048 |
| | | (.076) | (.092) | (.095) |
| Immigrant concentration | - | .046 | .046 | .073 |
| | | (.110) | (.110) | (.119) |
| Log population density | - | -.351 ** | -.311 * | -.356 * |
| | | (.119) | (.149) | (.166) |
| Collective efficacy | - | - | .039 | .027 |
| | | | (.051) | (.055) |
| Street activity | - | - | .016 | .085 |
| | | | (.120) | (.127) |
| Street activity squared | - | - | -.240 ** | -.209 * |
| | | | (.079) | (.080) |
| Intercept | -1.207 *** | -1.163 *** | -1.078 *** | -1.142 *** |
| | (.068) | (.068) | (.078) | (.078) |

[a] Neighborhood level $N$ = 155; Person level $N$ = 1113.

* $p$ < .05 ** $p$ <.01 *** p < .001 (two-tailed tests). Standard errors in parantheses.

Figure 1. Predicted Probability of Witnessing Violence (Anywhere)
by Street Activity (PHDCN Youth Ages 11-16)

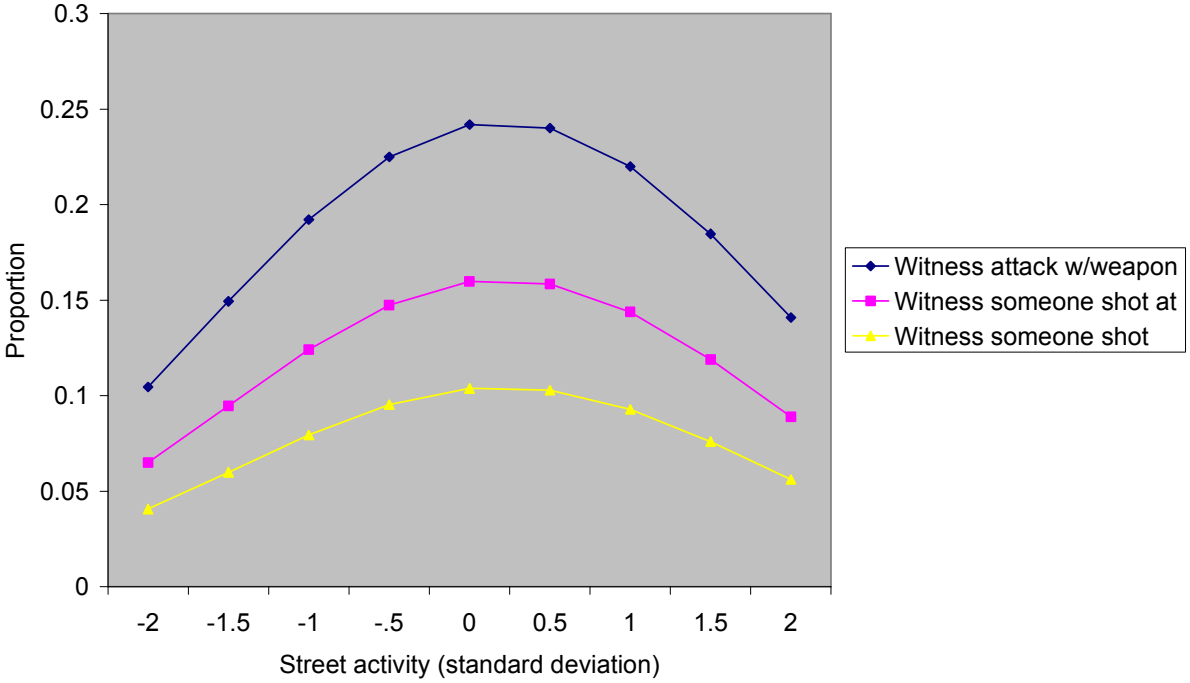

Figure 2. Predicted Probability of Witnessing Violence in the Neighborhood by Street Activity (PHDCN Youth Ages 11-16)