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Brief



**Adolescents, Neighborhoods, and Violence:
Recent Findings From the Project on Human Development
in Chicago Neighborhoods**

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Findings and conclusions of the research reported here are those of the author and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

NCJ 217397

ABOUT THIS REPORT

The Project on Human Development in Chicago Neighborhoods (PHDCN) was designed to investigate the development of crime and violence in children and adolescents. The PHDCN combines a longitudinal study of more than 6,000 Chicago children and adolescents with a study of Chicago neighborhoods. The longitudinal study involved interviews with children, adolescents, and primary caregivers conducted from 1995 through 2001.

This report summarizes findings from four recently published papers using the PHDCN longitudinal study to address various questions about adolescent violence.

What did the researchers find?

■ **Why do adolescents of different race and ethnicity commit violence at different rates?** The research identified several factors: neighborhood factors, the marital status of parents, and the immigrant status of the adolescent and the parent. Rates tend to be lower for adolescents who live in neighborhoods that have

more protective factors, who live with married parents, and who are immigrants or have parents who are immigrants.

■ **Does witnessing or experiencing gun violence really increase teenagers' likelihood of committing violence?** Yes. Teens exposed to gun violence are more likely to commit serious violence.

■ **Which adolescents are more likely to carry concealed firearms?** Youth who live in dangerous and disadvantaged neighborhoods and have had more exposure to violence are more likely to carry concealed firearms.

■ **Does early puberty affect adolescent girls' violent behavior?** Girls who mature early while living in disadvantaged neighborhoods are at increased risk for committing violence.

A common factor in all the articles summarized in this Research in Brief is the important role of neighborhoods in increasing or controlling adolescent violence.

Akiva Liberman

Adolescents, Neighborhoods and Violence: Recent Findings From the Project on Human Development in Chicago Neighborhoods

Why are some adolescents more violent than others? Why are some neighborhoods more violent than others? How do disadvantaged neighborhoods affect the development of resident youth? And, what is the relationship between violent neighborhoods and violent teens?

Questions such as these prompted the creation of the Project on Human Development in Chicago Neighborhoods (PHDCN). This unique project combined an intensive study of neighborhoods with a longitudinal study of children and adolescents recruited from 80 targeted neighborhoods. Three waves of interviews were conducted in the longitudinal study. The combination of data from this multilevel design allowed researchers to disentangle the effects of neighborhood conditions from the characteristics of adolescents. (See sidebar on page 2, "About the

Project on Human Development in Chicago Neighborhoods.")

With completion of the longitudinal study of youth in 2002, the Project has begun to address elusive questions about the interplay between neighborhood, individual, and family conditions in producing or controlling violence. This Research in Brief summarizes findings on violence from four recently published scientific articles. Each article used the multilevel design, drawing on data from both the neighborhood and youth studies, as shown in the appendix.

The body of research reviewed in the articles generally concludes that neighborhood conditions and social processes are important predictors of violence beyond the attributes of individual residents themselves. The findings suggest that neighborhoods are strong candidates for

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ABOUT THE PROJECT ON HUMAN DEVELOPMENT IN CHICAGO NEIGHBORHOODS

The Project on Human Development in Chicago Neighborhoods (PHDCN) was launched with major support from the National Institute of Justice and the John D. and Catherine T. MacArthur Foundation. It was led by Felton Earls, M.D., at the Harvard University School of Public Health and Medical School.¹ Project directors represent a variety of disciplines and major universities.

The project is remarkable in both its scope and design. It combines (1) a longitudinal study of youth, with repeated interviews of more than 6,000 youth and their caregivers, with (2) a neighborhood study that included a survey of almost 9,000 neighborhood residents and systematic observation of levels of social and physical disorder in 80 neighborhoods. Analyzing these complex data has required using innovative statistical techniques.

The neighborhood study was conducted in 1995–96. Chicago was first divided into 343 neighborhoods of about 8,000 residents, composed of contiguous census tracts. Then 25 to 50 residents of each neighborhood were surveyed about neighborhood conditions and about their attitudes, yielding 8,782 surveys. Research teams also systematically observed and recorded conditions of physical and social disorder on each side of every street block in 80 neighborhoods, yielding approximately 27,000 observations.

The longitudinal study of youth was launched at the same time in 80 neighborhoods, which were chosen to vary in both racial and ethnic composition and socioeconomic conditions. With enough youth from enough neighborhoods, researchers can examine similar youth who live in very different neighborhoods, as

well as youth who are not similar but live in similar neighborhoods.

The researchers enrolled 6,212 participants from 7 age cohorts (0, 3, 6, 9, 12, 15, and 18). Three waves of data collection were conducted. Each wave consisted of an interview with each youth who was at least 6 years old and an interview with a primary caregiver for youth younger than 18. Interviews were conducted about 2½ years apart. This design, in which multiple age cohorts are studied over overlapping ages, is referred to as an “accelerated longitudinal” design, because an age range (in this case, from 0 to about 25) can be studied in much less time than in a standard longitudinal study.

Early Findings From the Neighborhood Study

Findings from the PHDCN’s neighborhood study have received widespread attention in both the professional and general media. For example, in a widely cited article published in *Science* in 1997 and summarized in an NIJ Research Review, Robert Sampson, Stephen Raudenbush, and Felton Earls found that neighborhood social processes had a significant impact on homicide and violence in the community.²

Homicide and violent victimization rates were found to be lower in neighborhoods where residents shared values, had common expectations that neighbors would intervene in problem behavior, and trusted each other. The researchers called this combination of shared values, trust, and expectations for social intervention “collective efficacy” to control crime and deviance. The level of collective efficacy, in turn, was strongly influenced by neighborhood conditions such as the extent of poverty and the

lack of residential stability. Collective efficacy thus seems to be a mediating link between neighborhood conditions and crime and violence. Equally important, among neighborhoods with similar conditions, those with greater collective efficacy experienced less violence.

1. The Project also received support from the National Institute of Mental Health and the Administration for Children and Families, U.S. Department of Health and Human Services; and the U.S. Department of Education.

2. Sampson, R.J., S.W. Raudenbush, and F. Earls, "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy," *Science* 277 (1997): 918–924.

policy interventions to reduce violence.

The articles report the following specific findings:

- Neighborhood conditions differ markedly for youth of different race and ethnicity, and those differing conditions in turn account for much of the racial and ethnic differences in youth violence rates.
- Youth in disadvantaged and unsafe neighborhoods are more likely to carry firearms illegally; exposure to firearms violence increases the risk that youth will themselves commit violence.
- Girls who mature early in disadvantaged neighborhoods are at greater risk for being involved in adolescent violence.

Article 1—Race, Ethnicity and Violence: The Influence of Family and Neighborhoods

Why do African-American, Hispanic, and white adolescents commit violence at different rates? The disparities can be explained, in large part, because adolescents differ in whether their parents are married and how recently their families have immigrated, and because they live in different kinds of neighborhoods.

Neighborhoods are the strongest of these influences. In similar neighborhoods, adolescents of different race or ethnicity behave much more similarly than would be suggested by simply aggregating behavior by race or ethnicity.

These findings were reported by Robert Sampson, Jeffrey Morenoff, and Stephen Raudenbush in "Social Anatomy of Racial and Ethnic Disparities in Violence," published in the *American Journal of Public Health* in February 2005.¹

To explore how a youth's racial and ethnic background, family, and neighborhood contribute to violent behavior, the researchers combined data from the neighborhood study² with data from the study of youth. They analyzed violent behavior from three waves of data collected from 2,974 youth. Over the three project interviews, these

youth ranged in age from 9 to 25 years old.

The measure of violence was based on youth's own reports, rather than official records of arrest or other criminal justice system involvement. (See sidebar, "Measuring Violent Behavior.")

Although official records have often been used in related research, any findings of racial or ethnic differences in official records are dogged by the possibility that they were either produced or exaggerated by criminal justice system biases.³ In contrast, youth's

MEASURING VIOLENT BEHAVIOR

At each of three project interviews, subjects who were at least 9 years old were asked whether they had engaged in eight different violent behaviors over the preceding year:

1. Hit someone they did not live with.
2. Thrown objects such as rocks or bottles at people.
3. Carried a hidden weapon.
4. Been in a gang fight.
5. Attacked someone with a weapon.
6. Maliciously set fire to a building, property, or car.

7. Snatched a purse or picked a pocket.

8. Used a weapon to rob someone.

Serious violence was relatively rare: Robbery and purse snatching were reported by less than 1 percent of subjects (0.3 percent), and gang fighting by 3.9 percent. The most common item, hitting someone, was reported by 20 percent of subjects.

Clearly, these eight types of violent behavior vary in their frequency and severity. A statistical technique called Rasch modeling was used to combine them into one measure of violence,¹ which was analyzed in the study of racial and ethnic differences in violence. This measure

gives greater weight to self-reports of more serious and less frequent types of violence.

Most of the technical aspects of developing this measure are beyond the scope of this Research in Brief. Two complexities of substantive interest are briefly summarized here.

In-Home Violence

To be included in a Rasch scale, items must differ from one another only in severity on the underlying scale. For example, teens who report committing robbery are expected to report engaging in all less serious behaviors as well, including throwing objects and hitting others. Because the eight violence items included met this requirement, they seem to measure the same thing. “Hit someone you live with” did not relate to the other items in this way, however, which suggests that it may involve other dynamics. “It may be that violent acts committed at home constitute a different dimension than those committed outside the home,” according to the researchers.² As a result, violence in the home was not included in the overall violence measure analyzed here.

The Age-Crime Curve and the Crime Decline of the 1990s

These data were collected during a period when crime and violence was declining, both nationally and in Chicago. That decline in crime also affected study participants. As a result, a 15-year-old interviewed in 1995 was more likely to report committing violent behavior than an equivalent 15-year-old interviewed in 2001. This is known to researchers as an effect of “history” or “period.” A longitudinal study of youth from one age cohort, such as 12-year-olds in 1995, would be unable to disentangle the developmental effects of age from the influences of historical change. With the

crime rate declining just as these teens went through their most crime-prone years, the age-crime curve would be distorted.

In the PHDCN data, statistical models of the effect of age that ignored the effect of history seemed to show that a propensity to violence peaked around age 13—which is surprisingly early relative to prior research.³ The PHDCN’s design allowed the effects of history and age to be distinguished.

As noted, the PHDCN’s study of youth used an accelerated longitudinal design that interviewed different cohorts over overlapping ages. This means that youth of the same age (e.g., 18) were interviewed at three periods (1995–1996, 1997–1998, 2000–2001), and youth of different ages were interviewed at each period. As a result, the age-crime curve can be disentangled from period effects with these data. When age and period were disentangled, the age-crime curve showed the typical form, with violent behavior increasing from age 9 to 13 and peaking in the late teens. However, those who reached their late teens during later years—when crime was lower—showed smaller increases in violence from age 13 onward, and their violence peaked somewhat earlier.

1. Raudenbush S.W., C. Johnson, and R.J. Sampson. “A Multivariate, Multilevel Rasch Model With Application to Self-Reported Criminal Behavior,” *Sociological Methodology* 33 (1) (2003): 169–211; Johnson, C., and S.W. Raudenbush. “A Repeated-Measures, Multilevel Rasch Model With Application to Self-Reported Criminal Behavior,” in C.S. Bergeman and S.M. Boker, eds., *Methodological Issues in Aging Research*, Mahwah, NJ: Lawrence Erlbaum Associates, Inc., 2006: 131–164.

2. Johnson and Raudenbush, 2006, p. 188.

3. *Ibid.*, p. 180.

own reports of violent behavior cannot be affected by system biases. Prior research suggests youth reports are valid across racial groups.⁴

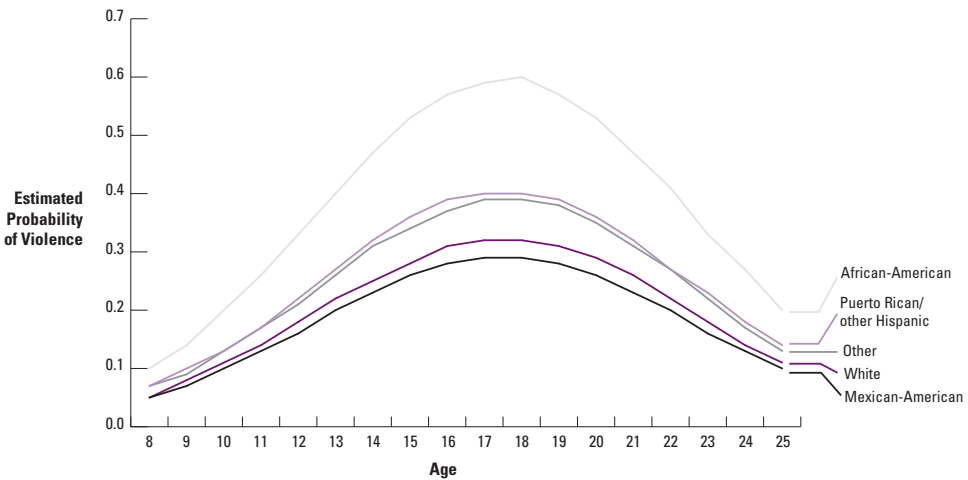
Youth from different racial and ethnic groups reported committing violence at different rates. African-American youth reported the most violence; Mexican-American youth reported the least violence, slightly below whites. Puerto Rican and "other" youth reported rates in between. Involvement in self-reported violence showed the

familiar age-crime curve for all groups, peaking at about age 17. The age-crime curve is shown in exhibit 1.

The study found expected racial and ethnic patterns in immigrant status and family structure: compared with whites, Mexican-American youth were more likely to be first- and second-generation immigrants and to live with their biological, married parents.

Compared with whites, more African-American youth lived

Exhibit 1. Male Age-Violence Curves by Race/Ethnicity: PHDCN Waves 1–3, Cohorts 9–18



Note: From Sampson, R.J., J.D. Morenoff, and S. Raudenbush, "Social Anatomy of Racial and Ethnic Disparities in Violence," *American Journal of Public Health* 95 (2) (2005): 224–232 (Fig. 1). Reprinted with permission of American Public Health Association.

with a single, unmarried parent, and more often lived in highly segregated areas with significant disadvantage and low collective efficacy. African-Americans were the least likely to be immigrants. Whites had the highest socioeconomic status, and they and Mexican-Americans lived in areas that were ethnically mixed but predominantly non-African-American.

Why did youth of different ethnic groups commit more or less violence? Their neighborhood conditions, parents' marital status, and immigrant generation accounted for most of the difference. These factors accounted for more than 60 percent of the gap between African-American and white violence, and the entire gap between Mexican-Americans and whites.

Among these factors, neighborhood conditions had the strongest influence on youth violence, accounting for about 30 percent of the difference in violence between African-Americans and whites. Less violence was committed by youth living in neighborhoods with more first-generation immigrants and where more residents were employed in professional and managerial occupations.

Youth living in neighborhoods where adult residents were more cynical about the law also reported more violence. Once these factors were accounted for, the neighborhoods' racial composition did not matter.

It is important to note that individual characteristics may be associated with violence but fail to account for racial and ethnic differences in violence. Two well-known individual characteristics fit this pattern: more impulsive youth and youth with lower verbal and reading abilities were more likely to be violent, but these factors did not account for much of the racial and ethnic differences in violence beyond the effects of family structure and immigrant generation.

Policy implications. The authors conclude that racial disparities in violence are “. . . largely social in nature and therefore amenable to change.” They suggest that policies such as housing vouchers to help poor families move to more stable neighborhoods and other neighborhood improvements are perhaps the most effective options for reducing longstanding racial disparities in violence. The authors also

emphasize that families matter, too, as evidenced by the lower risk for children living with married parents. The researchers urge greater emphasis on improving employment opportunities to help poor people achieve stable marriages.

Article 2—Does Exposure to Firearms Violence Increase Serious Violent Behavior?

Does violence beget violence? Research has pointed to the implications of childhood abuse for criminal behavior later in life.⁵ What is the effect of experiencing gun violence? In “Firearm Violence Exposure and Serious Violent Behavior,” published in *Science* in 2005, Jeffrey Bingenheimer, Robert Brennan, and Felton Earls explore the ramifications of exposure to firearms violence—either as a victim or witness—for the development of subsequent aggressive or violent behavior.⁶

During their second interview, 1,239 adolescents ages 14 to 17 were asked if they had been shot, shot at, or seen someone shot during

the previous year. About a quarter (23 percent) reported firearms violence exposure. About 2 years later at their third project interview, 978 of these youth were asked about their own aggression and violent behavior in the past 12 months. Twelve percent reported committing serious violence—defined as attacking someone with a weapon, shooting someone or at someone, carrying a hidden weapon, or being in a gang fight. Teens who had been exposed to firearms violence reported committing more serious violence during the subsequent 2 years than teens who had not been exposed.

The research challenge.

The best way to measure the effect of exposure to violence would be to conduct a randomized experiment. Researchers, of course, cannot expose some teens to gun violence to see its effect. So, research must compare the behavior of teens exposed to gun violence to teens who are not. Such comparisons are problematic, however, because teens exposed to gun violence differ from teens who are not exposed. Exposure to gun violence also is much

more likely in some neighborhoods than others.

The researchers used the Project's rich data to understand what differentiated teens exposed to gun violence from those not exposed. They examined 153 variables, including 14 neighborhood characteristics. Results showed that exposed teens differed from non-exposed teens on 37 of these factors, including 6 neighborhood characteristics. On average, exposed teens were more aggressive and impulsive than nonexposed teens even before they were exposed to gun violence. Their families used more physical abuse and corporal punishment and more often had legal problems and criminal records. Their peers were also more aggressive and more involved in property and drug crimes. Exposed teens also lived in neighborhoods with greater disadvantage and social disorder and less informal social control. In addition, residents in these neighborhoods were more cynical about the law and expressed less satisfaction with the police.

How, then, can the effects of exposure to gun violence be assessed? The researchers

used a method called propensity score stratification. This method capitalizes on the fact that not all teens at high risk for exposure to gun violence are actually exposed, and that even some teens at low risk do get exposed. The researchers first determined what individual, family, peer, and neighborhood factors increase the risk of exposure. They then grouped teens into 12 strata of risk for exposure to gun violence, and comparisons were made only within these strata of risk. This method generates "apples to apples" comparisons of teens with similar risk of exposure, only some of whom were actually exposed.

An important caveat is that this comparison could not be made reliably for those teens with the highest or lowest risk of exposure to firearms violence. Among the 1.6 percent of youth with the most extreme risk of exposure, too few were not exposed to generate a comparison group. Similarly, among the 24 percent least likely to be exposed to firearms violence, too few were exposed. These extremes of the sample were therefore excluded from the analyses.

Statistical comparisons within the remaining strata—about three-quarters of the participants—showed that exposure to firearm violence approximately doubled the probability that an adolescent would commit serious violence over the subsequent 2 years. As noted above, however, this finding cannot be generalized to teens at little risk of exposure or those with extremely high exposure risk.

Article 3—Youth Carrying Concealed Firearms

Why do adolescents carry firearms? Most prior research on this question has examined individual characteristics, and findings suggest that a major reason that adolescents carry firearms is self-protection.⁷ The context in which these youth live may be a major factor in their decision to carry firearms and deserves more direct examination.

Beth Molnar, Matthew Miller, Deborah Azrael, and Stephen Buka used the multilevel design of the PHDCN to examine why youth carried concealed weapons. Their findings were reported in “Neighborhood Predictors of

Concealed Firearm Carrying Among Children and Adolescents,” published in 2004 in the *Archives of Pediatric and Adolescent Medicine*.⁸ The researchers combined data from the study of neighborhoods with self-reports from teens in the youth study about carrying concealed firearms. These reports were given at the teens’ second project interview. At the time of this interview, they were between 12 and 19 years old. Although they were originally recruited from 80 Chicago neighborhoods, by the time of the interview, 1,752 participants lived in 218 different neighborhoods.

Fifty-six of these teens (3 percent) reported carrying a concealed firearm. Most of those carrying concealed firearms were male (82 percent) and among the older study participants (71 percent were 16 or older).

At the individual level, most of the risk factors concerned exposure to firearms or violence.

Living in a home where a gun was kept was associated with carrying a concealed weapon, although only two subjects reported actually carrying a gun taken from home. Most

had received or borrowed guns from friends (64 percent), and about one-quarter (23 percent) had bought the gun themselves.

Of teens carrying concealed firearms, more than 90 percent had been victimized, more than 90 percent had witnessed violence, and almost three-quarters had a family member who had been shot (73 percent).

Although these experiences with violence increased the risk that teens would carry a concealed firearm, the vast majority of teens who had witnessed violence, been victimized, or had a family member shot did not carry a concealed weapon.

Youth carrying concealed firearms had also previously engaged in more aggressive and delinquent behavior than others.

Does the neighborhood context itself affect concealed gun carrying, beyond individual experiences with violence? Researchers used multilevel statistical models to find out. The strongest predictor of concealed gun carrying was whether the neighborhood was safe or unsafe for children, as rated by survey respondents in the neighborhood study.⁹

Other neighborhood characteristics associated with carrying weapons included low levels of collective efficacy and greater social and physical disorder.¹⁰ (For an explanation of collective efficacy, see sidebar on page 2, “About the Project on Human Development in Chicago Neighborhoods.”) Neighborhood poverty did not predict concealed gun carrying.

The researchers suggest that policymakers who are looking for effective interventions to reduce youth violence and illegal gun carrying focus on neighborhoods and neighborhood social dynamics.

Article 4—The Role of Early Puberty and Neighborhood Factors in Girls’ Violent Behavior

Girls who reach puberty at a younger age than others are more likely to be delinquent and behave antisocially, according to previous research. Dawn Obeidallah, Robert T. Brennan, Jeanne Brooks-Gunn, and Felton Earls explored the joint effect of the timing of puberty and neighborhood factors in their 2004 article, “Links Between

Pubertal Timing and Neighborhood Contexts: Implications for Girls' Violent Behavior," published in the *Journal of the American Academy of Child and Adolescent Psychiatry*.¹¹

They found that girls who mature early are more likely to commit violence, but that this effect seems limited to girls from disadvantaged neighborhoods.

The researchers combined data from the first 2 project interviews of 501 girls with data about their neighborhoods. The girls were about 12 to 15 years old at the time they enrolled in the study, and most were from minority families. The average age of puberty for the sample was 11.7 years. One-fifth of the sample matured early (defined as menarche before age 11).

Girls report violent behavior.

At their first interview, about one-third of girls reported engaging in violence. This declined to about one-quarter at their second interview, which likely reflects the overall drop in violent crime in Chicago between these interviews (1995 to 1998). The researchers examined how changes in violence between these interviews differed as a function of

puberty and the characteristics of their neighborhoods.

Three neighborhood characteristics were examined: concentrated disadvantage, residential instability, and immigrant concentration. Neighborhood factors alone were not reliably associated with changes in girls' violence; neither was early maturation. When examined together, girls who matured early and who also lived in very disadvantaged neighborhoods became relatively more violent than others. The authors suggest that early-maturing girls in disadvantaged neighborhoods may suffer a "double vulnerability that may overwhelm girls' capacity to act in a developmentally optimal manner, forging their path to increased violence."

Limitations. This study examined neighborhood conditions but did not explore the neighborhood social processes that might make early-maturing girls more violent. This is clearly a task for further research. Likewise, because the girls self-reported both the timing of their puberty and their violent behavior, the researchers suggest that future research could be strengthened by

medical assessments of the onset of puberty. Such screening, if part of a routine clinical visit, could also provide an opportunity to offer support to vulnerable girls.

Conclusions

The findings from the PHDCN indicate that neighborhood conditions and social processes play an important role in influencing adolescent violence, beyond the attributes of individuals in those neighborhoods. In the articles reviewed here, this general conclusion relates to illegal firearms carrying, exposure to firearms violence, the observed racial and ethnic differences in offending, and the relationship between early puberty and violent behavior in girls.

None of these findings on neighborhood influences contradict the many robust findings about the effects of individual, family, and peer factors in producing violence. Although not the primary focus of this Research in Brief, the articles reviewed report many such effects, including the role of married parents, youth impulsiveness, individual experiences with violence and victimization,

and association with deviant peers. These findings are consistent with many other studies of the development of delinquency.

The PHDCN has the rare ability to focus on the interplay among neighborhoods, families, and individual characteristics on the development of children and adolescents. Research that lacks the Project's multilevel design is hard pressed to disentangle neighborhood effects from individual effects. Each study reviewed in this Research in Brief finds that neighborhoods affect development in a way that cannot be reduced to characteristics of study participants themselves, their peers, or families.

Neighborhoods offer much potential for policy interventions to reduce violence. Considerable work will be required, however, to identify and test effective interventions to bolster protective neighborhood social processes.

Future Directions

The complexity of the PHDCN required great care in design and execution and in organizing and managing

data. Over the course of a decade, data have been collected on more than 6,000 children and adolescents ranging from age 0 to 25, and integrated with a community survey of almost 9,000 adults across Chicago neighborhoods. The neighborhood study also included “systematic social observation” of social and physical disorder in 80 targeted neighborhoods.

The articles reviewed in this Research in Brief illustrate the interdisciplinary nature of the PHDCN; findings with direct relevance to criminal justice policy are published in a variety of disciplines. Project data have also illuminated a host of other issues in psychology, sociology, psychiatry, and public health. Numerous other publications have focused on the Project’s methodological and statistical innovations, which have been central to the Project’s development. Additional papers on many of these topics are expected in the coming years.

A second wave of the neighborhood study was conducted in 2002 and 2003. A shortened community survey was administered to more than 3,000 participants across all Chicago neighborhoods in

collaboration with the Chicago Community Adult Health Study. A smaller second wave of systematic social observation also was conducted in collaboration with the Mind-Body Study of the University of Michigan. These new data will allow researchers to examine the extent of neighborhood change, and how such change relates to violence and crime.

The Data Archive

Much of the data from both the neighborhood and youth studies are now archived at the Inter-university Consortium of Political and Social Research at the University of Michigan (ICPSR). The data archive allows other researchers to conduct additional analyses. In 2005 and 2006, two summer workshops were held at ICPSR on the use of these data. Information about the archive is available at www.icpsr.umich.edu/PHDCN. The archive also maintains a list of related publications.

Notes

1. Sampson, R., J. Morenoff, and S. Raudenbush, "Social Anatomy of Racial and Ethnic Disparities in Violence," *American Journal of Public Health* 95 (2) (February 2005): 224–232.
2. This article used census tracts as "neighborhoods," which are smaller than the neighborhoods used for analysis in the other articles summarized here.
3. McCord J., C.S. Widom, and N.A. Crowell, eds. *Juvenile Crime, Juvenile Justice*. Panel on Juvenile Crime: Prevention, Treatment, and Control. Committee on Law and Justice and Board on Children, Youth, and Families: Commission on Behavioral and Social Sciences and Education, National Research Council and Institute on Medicine. Washington, DC: National Academies Press. 2001.
4. Farrington, D.P, R. Loeber, M. Stouthamer-Loeber, W.B. Van Kammen, and L. Schmidt, "Self-Reported Delinquency and a Combined Delinquency Seriousness Scale Based on Boys, Mothers, and Teachers: Concurrent and Predictive Validity for African-Americans and Caucasians," *Criminology* 34 (4) (1996): 493–517; Thornberry, T.P., and M.D. Krohn, "Comparison of Self-Report and Official Data for Measuring Crime," in *Measurement Problems in Criminal Justice Research: Workshop Summary*, J.V. Pepper and C.V. Petrie, eds. Washington, DC: National Academies Press, 2002: 43–94.
5. Widom, Cathy S., "Childhood Victimization: Early Adversity, Later Psychopathology," *NIJ Journal* 242 (January 2000): 2–9, Washington, DC: U.S. Department of Justice, National Institute of Justice, NCJ 181864.
6. Bingenheimer, J. B., R. T. Brennan, and F.J. Earls, "Firearm Violence Exposure and Serious Violent Behavior," *Science* 308 (May 27, 2005): 1323–1326.
7. Arria, A.M., G. Borges, and J.C. Anthony, "Fears and Other Suspected Risk Factors for Carrying Lethal Weapons Among Urban Youths of Middle-School Age," *Archives of Pediatrics and Adolescent Medicine* 151 (1997): 555–560. Kingery, P.M., B.E. Pruitt, and G. Heuberger, "A Profile of Rural Texas Adolescents Who Carry Handguns to School," *Journal of School Health* 66 (1996): 18–22. Martin, S.L., L.S. Sadowski, N.U. Cotton, and D.R. McCarraher, "Response of African-American Adolescents in North Carolina to Gun Carrying by School Mates," *Journal of School Health* 66 (1996): 23–26. Meilman, P.W., and J.R. Cashin, "Weapons Carrying and Substance Abuse Among College Students," *Journal of American College Health* 46 (1997): 3–8.
8. Molnar, B., M. Miller, D. Azrael, and S. Buka, "Neighborhood Predictors of Concealed Firearm Carrying Among Children and Adolescents: Results From the Project on Human Development in Chicago Neighborhoods," *Archives of Pediatrics and Adolescent Medicine* 158 (July 2004): 657–664.
9. A change in neighborhood safety of one standard deviation increased the odds of concealed gun carrying by a ratio of 5.8. The neighborhood safety measure was based on neighborhood

residents' rated agreement with five statements: (1) You can count on adults in this neighborhood to watch out that children are safe and don't get into trouble. (2) Children around here have no place to play but the street. (3) Equipment and buildings in the park or playground nearby are well kept. (4) The park or playground nearby is safe during the day. (5) The park or playground nearby is safe at night.

10. The contributions of these neighborhood characteristics could not be disentangled from the effect of neighborhood safety, because they were too intertwined. Instead, each was examined separately, controlling for individual characteristics.

11. Obeidallah, D., R.T. Brennan, J. Brooks-Gunn, and F.J. Earls, "Links Between Pubertal Timing and Neighborhood Contexts: Implications for Girls' Violent Behavior," *Journal of the American Academy of Child and Adolescent Psychiatry* 43 (12) (December 2004): 1460–1468.

Additional reading

The following NIJ publications discuss the Project's key early results:

Adolescent Girls: The Role of Depression in Development of Delinquency. NIJ Research Preview, by Dawn A. Obeidallah and Felton J. Earls, July 1999. NCJ 184349. FS 000244.

Assessing the Exposure of Urban Youth to Violence. NIJ Research Preview, by Mary Beth Selner-O'Hagan, Daniel J. Kindlon, Stephen L. Buka, Stephen W. Raudenbush, and Felton J. Earls, November 1996. NCJ 184414.

Attitudes Toward Crime, Police, and the Law: Individual and Neighborhood Differences. NIJ Research Preview, by Robert J. Sampson and Dawn Jeglum Bartusch, June 1999. NCJ 184200. FS 000240.

Breaking the Cycle: Predicting and Preventing Crime, NIJ Research Report, by Felton J. Earls and Albert J. Reiss, Jr., 1994. NCJ 140541.

Disorder in Urban Neighborhoods: Does It Lead to Crime? NIJ Research in Brief, by Robert J. Sampson and Stephen W. Raudenbush, February 2001. NCJ 186049.

Linking Community Factors and Individual Development. NIJ Research Preview, by Felton J. Earls, September 1998. NCJ 184348. FS 000230.

"Men and Fathers in the Community." *Perspectives on Crime and Justice: 1998–1999 Lecture Series*, Vol. III, November 1999. Lecture by Felton J. Earls, February 1999. NCJ 178244.

Neighborhood Collective Efficacy: Does It Help Reduce Violence? NIJ Research Preview, by Robert J. Sampson, Steven W. Raudenbush, and Felton J. Earls, April 1998. NCJ 184377. FS 000203.

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Appendix. Data Used in the Articles Reviewed

Article	Outcome	Youth Study Data			Neighborhood Study Data	
		N	Cohorts (Age at first interview)	Wave of interviews used	U.S. Census Data on Neighborhood Conditions	PHDCN Community Survey Data on Neighborhood Social Processes
<i>Social Anatomy of Racial and Ethnic Disparities in Violence¹</i>	Self-reported violence	2,925	9, 12, 15, and 18	1, 2, and 3	Yes	Yes
<i>Firearm Violence Exposure and Serious Violent Behavior²</i>	Self-reported violence	978	12 and 15	2 and 3	Yes	Yes
<i>Neighborhood Predictors of Concealed Firearm Carrying Among Children and Adolescents: Results From the PHDCN³</i>	Self-reported concealed firearm carrying	1,842	9, 12, 15, and 18	2	Yes	Yes
<i>Links Between Pubertal Timing and Neighborhood Contexts: Implications for Girls' Violent Behavior⁴</i>	Self-reported violence	501 girls	12 and 15	1 and 2	Yes	No

1. Sampson, R.J., J.D. Morenoff, and S. Raudenbush, "Social Anatomy of Racial and Ethnic Disparities in Violence," *American Journal of Public Health* 95 (2) (February 2005): 224–232.
2. Bingenheimer, J.B., R.T. Brennan, and F.J. Earls, "Firearm Violence Exposure and Serious Violent Behavior," *Science* 308 (May 27, 2005): 1323–1326.
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4. Obeidallah, D., R.T. Brennan, J. Brooks-Gunn, and F.J. Earls, "Links Between Pubertal Timing and Neighborhood Contexts: Implications for Girls' Violent Behavior," *Journal of the American Academy of Child and Adolescent Psychiatry* 43 (12) (December 2004): 1460–1468.

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