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Urban Delinquency and Substance Abuse

Technical Report

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Urban Delinquency and Substance Abuse

Technical Report

Edited by

David Huizinga, Ph.D.
Denver Youth Survey

Rolf Loeber, Ph.D.
Pittsburgh Youth Survey

Terence P. Thornberry, Ph.D.
Rochester Youth Development Study

John J. Wilson, Acting Administrator
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November 1993
(revised)

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National Institute of Justice

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**Program of Research on the
Causes and Correlates of Delinquency**

**URBAN DELINQUENCY AND SUBSTANCE ABUSE:
Technical Report**

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Sponsored by:

Office of Juvenile Justice and Delinquency Prevention
U.S. Department of Justice

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The Program of Research on the Causes and Correlates of Delinquency, upon which the report is based, reflects the efforts, support, and encouragement of many individuals. The program was initiated by the Office of Juvenile Justice and Delinquency Prevention (OJJDP) at a time when others were still wondering about the feasibility of mounting such programs of longitudinal research. Pamela Swain and Barbara Tatem Kelley of OJJDP were instrumental not only in their efforts to initiate the program within OJJDP, but also in serving as Director of Research of OJJDP and grant monitor, respectively, during the early years of the program. Their strong support for the program and their help is gratefully acknowledged. In later years, Irving Slott and Donni LeBoeuf have most capably filled these roles. Eileen Garry of Aspen Systems has provided valuable administrative assistance since the beginning.

A National Advisory Board consisting of Drs. Alfred Blumstein, Dante Cicchetti, Malcolm Klein, Lloyd Ohlin, and Lee Robins, has provided continuing support and helpful guidance to the individual projects and to the overall program. The program has benefited from their continuing assistance and insightful questions.

Many other individuals have contributed to each of the individual projects and their contributions are acknowledged in the following.

DENVER YOUTH SURVEY

Research projects of the magnitude described in this report clearly come to fruition due to the efforts of a large number of people. First and foremost, the Denver Youth Survey extends a heartfelt "thanks" to the families that have allowed us into their lives. Without the cooperation of the more than 1,500 child and youth respondents and their parents, this research would never have materialized. We are also especially indebted to the number of fine interviewers who have worked so diligently for the survey during the first four annual surveys of this research project. The interviewers serve as our primary contact with the respondents. It is their efforts that maintain respondent cooperation and provide the initial high quality data.

During the first five years of the Denver study, a dedicated field staff has been responsible for the logistical procedures of running a large longitudinal survey project, tracking respondents locally and across the country, ensuring high cooperation rates, and preparing a quality data set. For their dedication in completing these important and sometimes tedious tasks in good cheer, we would like to express our appreciation to the following individuals: Judy Armstrong Laurie -- the field coordinator during the last two surveys, and Linda Kuhn -- field coordinator during the first two data collection periods; Linda Cunningham and Judy Perry who have been with us from the outset and who have assumed critical roles in the research effort; Sylvia Portillo who has been of tremendous assistance in the collection of data from Spanish speaking respondents; Amanda Elliott, Deantha Menon,

and Julie Smith who have been responsible for not only the bulk of the data entry but have assisted in the field effort and have served as a final point of quality control; Meg Dyer and Maryann Moderhak who assisted in the early years; and Jennifer West, Nell Swiers, Patty Bailey, and Nancy Block who have served as interviewer supervisors and coders during at least one of the annual data collection periods.

We have also been assisted by a number of experienced scholars. We are indebted to Irving Piliavin and Ross Matsueda for their assistance in the development of the rational choice section of the youth interview schedule; Joan McCord for her comments on the importance of family variables and for her help on general survey and research design issues; David Hawkins for his critique and insight regarding the role of schools; David Kaplan for his contributions to the measurement of family and adolescent health variables; and Bruce Johnson for his assistance in focusing our attention on important gang and drug use and drug selling issues.

Finally, we thank our local colleagues and our colleagues at the other research sites for their support and good natured encouragement who have made the project both challenging and enjoyable.

PITTSBURGH YOUTH STUDY

The Pittsburgh Youth Study, like the other studies, was only possible because its many building blocks were the results of the initiative and persistence of many individuals. Foremost the study's smooth data collection in the field and high cooperation

rate can be ascribed to Dianne Miller and Rosemary Constanza. Data collection in the school was the responsibility of Corinne Pheffercorn, Rosemary Constanza, and Joyce Thompson. Data processing and control was largely in the expert hands of Barbara Kumer and Matthew Cronin. Innumerable research assistants and interviewers contributed.

The study was much helped by its own group of advisors who contributed in various ways, including Drs. Alfred Blumstein, Joan McCord, and Lee N. Robins. At the Pittsburgh Board of Education, various individuals were very helpful, especially Mrs. L. Brennan, Dr. H.F. Faison, Dr. R.C. Wallace, and Dr. M.M. Kerr, while Dr. Paul LeMahieu greatly facilitated data collection and analyses. Mr. J. Dagerdas and Judge E. Strassburger from the Juvenile Court in Pittsburgh helped much to facilitate data collection in the court. Dr. Anthony Costello was an initial Co-Investigator and played an important role on advising on the psychiatric aspects of the project; after his move away from Pittsburgh, his role was taken over by Dr. Christopher Thomas, who contributed much in several ways.

Most important, we thank our more than 1,500 youngsters who time and again were willing to stay with the project and tell us what it is like to grow up these days. We are also very grateful to the parents and the teachers to share information with us over so many data waves.

ROCHESTER YOUTH DEVELOPMENT STUDY

Research projects of this scope and duration owe whatever degree of success they attain to the coordinated efforts of many

individuals. We would like to recognize at least some of those who have contributed to the efforts of the Rochester Youth Development Study over the past five years.

While this project is headquartered in Albany, all data collection takes place in Rochester, 250 miles to the west. Off-site data collection can be troublesome, but in our case it went smoothly and efficiently because of our Rochester Field Office. In particular, William Miles, the Field Director, is to be recognized for his Herculean efforts in producing a high-quality data set with high retention, time after time. He is aided and abetted by a dedicated staff: Raymond Specht, Jacquetta Horton, and Kelly Elward. Over the years they have trained and supervised scores of interviewers and have been responsible for conducting over 13,000 interviews! We also thank the many interviewers, and especially David Peralta and Carol Wright, for their tremendously efficient and professional work.

We also thank the 1,000 families in the Rochester study. Every six months for the past three and a half years these adolescents and their parents have been willing to share with us their attitudes, feelings, and behaviors. They have helped us understand the difficulties and joys of growing up today and we are greatly appreciative of their time and cooperation.

The study could not have been completed without the help of many people in the Rochester community. We would particularly like to thank Peter McWalters and David Hunt of the Rochester schools who have been unstinting in their cooperation since day one. We also thank Judy Klein-Henwood, the principals, and

contact people at each school for allowing us to conduct the student interviews.

The Rochester Youth Development Study collects extensive information from official agencies that deal with adolescents. We thank the following people for granting us access to these records: Stephen DiGennaro, Tom McCabe, and Steven Potter of the Rochester Police Department; Francis Affronti of the Supreme Court; Leonard Maas and Gail Blyer of the Family Court; Clayton Osborne of the County Commissioner's Office; Frank Petrus, Audrey Fanning, Chris Hines, and Mary Cerasulo of the Probation Department; and Diane Larter, Daniel Ross, and Kathy Lynch of the Department of Social Services.

The Rochester Youth Development Study has an equally dedicated staff in Albany. We would like to thank our co-principal investigator, Margaret Farnworth for her contributions to the project from its inception stage until today. She did not join in preparing this report only because of distance -- she is now on the faculty at Sam Houston State University.

All data are coded and keypunched in Albany. We would like to thank the coding and keypunching staff, especially its directors Linda Toga and Marilyn Hubbard for their accuracy and efficiency.

Since its inception, the project has been blessed by having an incredibly strong set of doctoral student research assistants. They are: Beth Bjerregaard, Liz Cass, Deborah Chard-Wierschem, Sung Joon Jang, Carolyn Smith, and Jim Tesoriero. Their intellectual and practical contributions have been invaluable.

We have also benefitted greatly over the years from our own advisory board consisting of Rand Conger, Rex Forehand, and Charles Wellford. They have always been stimulating and encouraging.

We also thank the project's administrative assistant, Pamela Porter. She has contributed to the project in innumerable ways and is always willing to work above and beyond the call of duty.

Last but not least, we thank our administrative staff for their dedication and commitment to the project. They include our secretary, Jeannette Megas; computer programmer, Patty Glynn; and financial assistant, Sharon Wright. Without their help little of our work -- including this report -- would ever see the light of day.

CHAPTER 1**INTRODUCTION**

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Denver Youth Survey

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Pittsburgh Youth Study

Terence P. Thornberry
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Many of us are interested in knowing how and why boys and girls become delinquent, especially serious and violent delinquents and problem drug users. We are also interested in what can be done to prevent these behaviors. Delinquency and drug abuse are among the most resilient forms of problem behavior. There is a large cost to society in terms of human injury and suffering, property damage, and economic loss caused by serious delinquency. Because of this, considerable resources have been allocated to the prevention, prosecution, treatment, and containment of delinquent behavior. Despite our efforts as a society, we have clearly failed to limit and control delinquency. Casual observations on the streets of our major cities and our daily news attest to this.

Part of this failure must be attributed to our lack of a clear understanding of the real causes of delinquency and drug use. While many people think they "know" the causes of

delinquency, clearly they do not; for if they did, we should have been more successful in our efforts to prevent and control it. So it is crucially important to better understand this behavior if we are to successfully reduce it.

Social scientists and others are now in general agreement that one of the most appropriate ways to obtain a better understanding of delinquency and drug use is to conduct longitudinal studies that follow the same children and youth over extended and critical periods of their lives (Farrington, Ohlin, and Wilson, 1986; Tonry, Ohlin, and Farrington, 1991). By doing so we can accurately see the factors that precede and lead to delinquency and drug use and identify the proper targets and timing for intervention programs. The causes of delinquency and drug use may not be the same for nine year olds as for sixteen year olds, but we know very little about what the specific causes are for younger children or older adolescents. Nor do we know very much about the conditions and life experiences that lead some children to grow into adolescent delinquents, while others do not. That is why it is imperative to follow the same subjects over major segments of their lives to better understand the developmental pathways and salient factors that can be affected to reduce serious delinquency and drug use.

To follow individuals across major segments of their lives, requires long term studies of perhaps a decade or more. Such studies will not provide guidance for immediate or "quick-fix" solutions that may be popular and satisfy practical and political

needs to do something -- anything -- now. However, without such studies, we are likely to continue developing and implementing prevention and intervention programs which lack an adequate knowledge base, which take whatever is popular, in vogue, or seems good at the time - and which, given our history, are generally ineffective.

It is against this background, that in 1986 the Office of Juvenile Justice and Delinquency Prevention launched the Program of Research on the Causes and Correlates of Delinquency. This program involves three interrelated projects - the Denver Youth Survey at the University of Colorado, the Pittsburgh Youth Study at the University of Pittsburgh, and the Rochester Youth Development Study at the State University of New York at Albany. These three projects were selected to work collaboratively and cooperatively in conducting longitudinal studies to examine the development of serious delinquency and drug use. Among the salient features of the program are the following:

- It includes three highly coordinated projects so that key findings can be replicated and cross-validated. This is important since findings at one site may or may not generalize to other sites, and findings from only one site provide an inadequate basis upon which to formulate generalizable policy or intervention strategies.
- All projects include large numbers of high risk youth and high risk families. Each study was designed to insure that a sufficient number of high risk youth and families would be included so that the full spectrum of developmental pathways could be examined. This has not always been the case in delinquency research.
- Each study has a large sample ranging from 1000 to 1500 families.
- In combination, the studies cover a wide age span, ranging from first graders to seniors in high school.

Thus childhood precursors to later delinquency as well as developmental pathways from junior high to high school can be examined.

- Unlike most previous studies, each study has a large representation (over 50%) of minorities. Also, two samples include both boys and girls.
- The studies maintain frequent contact and interview assessments with the families so that developmental changes can be traced. The studies are "prospective", meaning they obtain information about the current time and are not based on long retrospective recall that may be affected by memory loss and reconstruction of events.
- The studies have the most comprehensive, common measurement package ever used in delinquency studies. This includes information about families, health, victimization, education, peers, mental health, employment, psycho-physiology, neighborhood social disorganization, early sexual activity and pregnancy, in addition to delinquency, drug use, and other problem behaviors.
- Each study interviews the child or adolescent as well as the youth's primary caretaker and, whenever possible, teachers. Thus, multiple perspectives on each subject's development and behavior is obtained.
- In addition to interview data, the studies are collecting extensive data from official records, such as school, police, and juvenile court. This will provide comparison data about the relationship between self-reported characteristics and behavior and that which is officially detected and recorded.
- The studies have maintained extraordinarily high retention rates for the subjects. After numerous interviews each study has retained over 90 percent of the subjects so that the inferences drawn from this research will be valid.

All of these features add up to make the overall program one of the most comprehensive and interdisciplinary investigations of the basic causes of delinquency and drug use ever conducted. Strong interest in the program has also permitted development of a number of related studies funded by the National Institute of

Health, the National Institute of Drug Abuse, the National Institute of Mental Health, the National Science Foundation, the John D. and Catherine T. MacArthur Foundation, the National Institute of Justice, and the American Psychiatric Association. These studies expand the focus of the overall program and are briefly described in the project descriptions of the method section (Chapter 2).

OBJECTIVES OF THIS REPORT

This report reflects the continuing work of the Program of Research on the Causes and Correlates of Delinquency. As indicated earlier, it will be several years before examination of the full developmental patterns leading to delinquency and drug use can be achieved. However, such longitudinal programs may also be able to provide useful, if not final, information while they are in progress. The program currently has collected data for over three years and the first three years of data have been prepared for analysis and form the basis for this report. The timing of the report also reflects the end of the initial grant periods for the three projects and a request from the Office of Juvenile Justice and Delinquency Prevention for a report that focused on policy issues and that would be of interest to a wide audience of practitioners, policymakers, and researchers.

Given the breadth of information collected by the projects of the Program of Research, selection of the topics to be included in the report was not easy. We attempted to choose

topics that would be of current interest and inform current policy debates. These topics include a focus on the extent of and relationships between delinquency, drug use, arrest, teenage sex and pregnancy, and developmental progressions in delinquency and drug use. Findings about these topics serve to illustrate the scope, magnitude, and relationships between these problem behaviors. Other topics selected provide a focus on some potential causes and correlates of these behaviors. Findings about family relationships and parenting, school factors, the role of peers and gangs, ownership of weapons, the effect of teenage employment, and the use of mental health and social services for problem behaviors are examined.

While this selection of topics covers many areas of interest, it is important to note that it does not reflect all the work that is ongoing by the program or at the individual sites. Nor does it exhaust all the analyses planned and in progress, even on some of the topics selected. (References to additional research reports are included in Appendix 2.) In this sense, this collaborative report should probably be considered as only the first of a series of reports on interesting and potentially important policy relevant topics. Because of this, we hope that this report illustrates the potential of the program and we would encourage readers with particular interests or questions to contact the Office of Juvenile Justice and Delinquency Prevention or one of the individual projects so that future reports or research monographs can incorporate such

additional issues.

STRUCTURE OF THE REPORT

Following this introduction, a methods chapter provides descriptions of each of the three projects and of the methods and statistical procedures used in later chapters. Chapters 3 through 7 focus on delinquent and drug use behavior. Chapter 3 describes the epidemiology of delinquency and drug use, providing estimates of the prevalence and level of involvement in delinquency and drug use at the three sites. Chapter 4 examines the role of arrest and juvenile justice system processing. Chapter 5 explores the delinquency-drug use connection. Chapter 6 provides information about teenage sex and pregnancy, and Chapter 7 examines developmental progressions in problem behavior and delinquency.

Chapters 8 through 18 examine selected topics considered to be potential causes and correlates of delinquency and drug use. Included are the role of the family as indicated by family attachment, Chapter 8, and family interaction and parenting, Chapter 9. Chapters 10 and 11 focus on school issues, commitment to school and reading problems. The distribution of problem behaviors by type of neighborhood is examined in Chapter 12. The role of peers and gang membership in delinquency and drug use is examined in Chapters 13 and 14. Chapter 15 explores the relationship of gun ownership to delinquency and Chapter 16 examines the influence of teenage employment on delinquency. Finally, Chapter 17 examines the help-seeking and service

utilization by families with problem behavior children and Chapter 18 examines resilient youth and protective factors.

Each of these chapters is relatively independent of the others and can be read separately, although Chapter 2 will provide a better understanding of the research design at each site and the methods used in this report, so it may profitably be read first. Each chapter describes research findings and concludes with relevant policy related observations. Chapter 19 provides a summary of some of the more salient findings and recommendations. It also provides the opportunity to draw recommendations that stem from joint findings across the various chapters.

PROCEDURES FOR DEVELOPING THE REPORT

The collaboration and cooperation required to produce a policy report among three research projects of this magnitude is rare. Procedures for performing joint analyses and for producing the report had to be developed. We adopted procedures for producing common statistical analyses at the individual sites and then sending these analyses to other sites for substantive analysis and interpretation. This willing and open sharing of original unpublished research data in collaborative fashion is unusual and illustrates the cooperative nature of the program. Most of the chapters involve this collaboration. The individuals most centrally involved in each topic are listed as authors of the corresponding chapter and the individual responsible for the

original draft is listed first as the lead author. However, for the authors to take all the credit (or all the blame) for a given chapter would be inappropriate, since the content of the chapter is often based on the interaction of many staff members, both within and across sites.

The general strategy used in creating the collaborative chapters involved one site taking the lead and synthesizing the findings from the common data analyses across sites, and then further examining a topic by specialized analyses using data from the lead site. These complete draft chapters were then reviewed and discussed among members at each of the sites in producing a final chapter for this report.

In addition to collaborative chapters, three chapters are site specific, and reflect some unique analyses available from specific sites. These include Chapter 11 on reading, Chapter 12 on problem behavior by type of neighborhood, and Chapter 15 on gun ownership.

Finally, it should be noted that the opportunity and willingness of researchers to make policy observations is also rather rare. Three issues arise. First, because political or social agendas of researchers may color or control their selection and presentation of findings, there is a question of whether the findings reported are objective and unbiased. Second, because policy recommendations must often go beyond the research findings currently available, researchers may make statements that may have to be modified when additional empirical

data become available. As a result, the appearance of scientific rigor may be given to statements or conclusions by the researchers or by others, when such an appearance is not justified. Third, policy and practice recommendations may depend on a number of political and practical considerations, of which researchers may not be fully aware, and there is, in a general sense, a question of whether researchers really know what they are talking about, especially in the realm of policy.

In producing this report we have tried to be sensitive to these issues, since from the inception of the program, OJJDP has continually emphasized the importance of the program's policy relevance and the expectation for policy related findings and conclusions from the projects. In this report we have attempted to be objective and to follow empirical leads, even when the results were not those anticipated; and we have attempted to minimize gross overgeneralizations. We hope that the report begins to fulfill the goal envisioned by the founders and later supporters of the Program of Research on the Causes and Correlates of Delinquency.

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CHAPTER 2

METHODS

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INTRODUCTION

As a collaborative and coordinated enterprise, the Program of Research on the Causes and Correlates of Delinquency shares several common elements. In this chapter the methods used to employ these shared elements to produce a collaborative integrated report are described. The description provides overviews of (1) the research and sampling designs used at each of the sites; (2) a description of the sample characteristics and cooperation and retention rates; (3) a description of measures used in this report, as well as others available at individual sites; and (4) a description of data preparation and analyses.

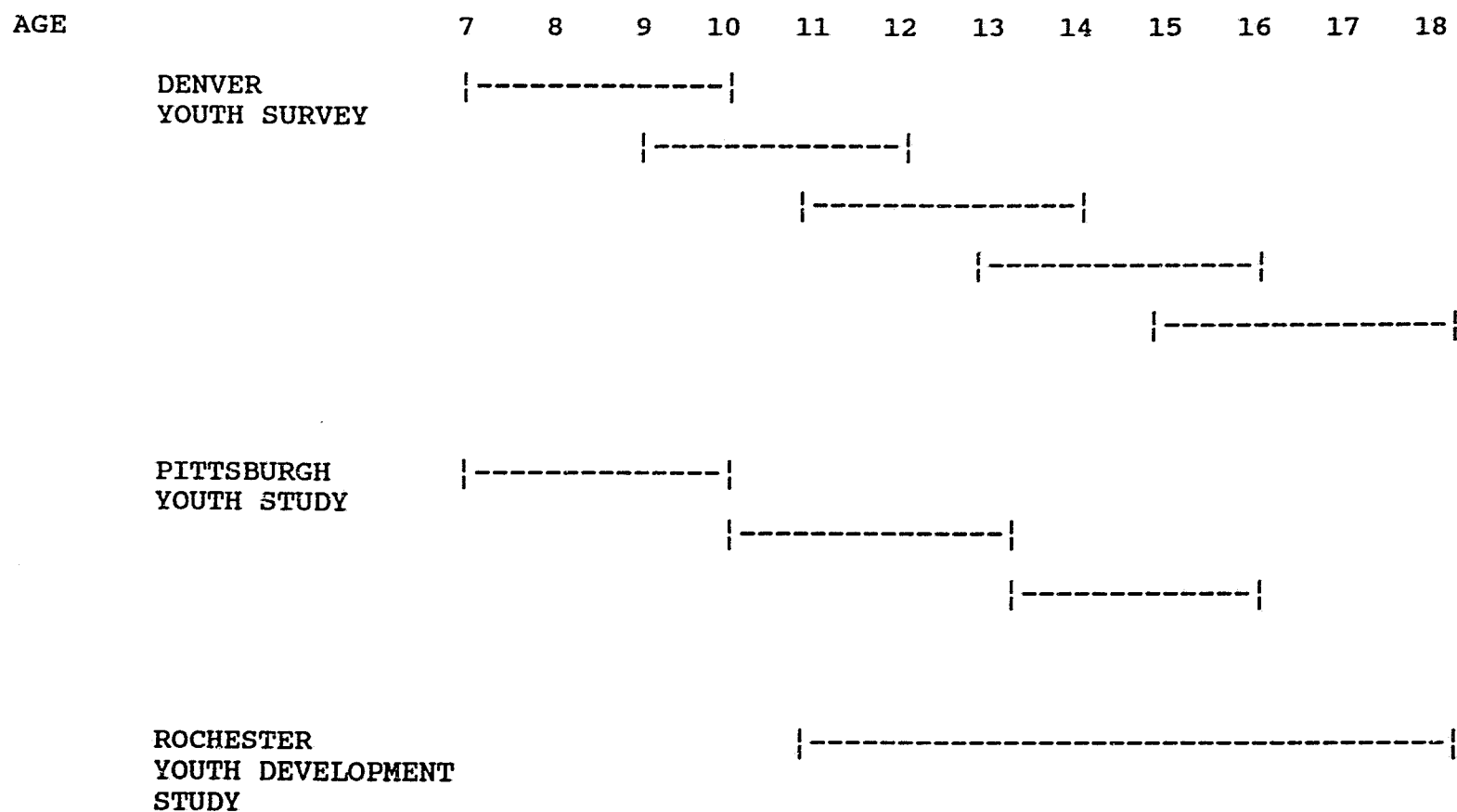
In overview, the prospective longitudinal surveys of the three studies in Denver, Pittsburgh, and Rochester involve periodic interviews with probability samples of nine different cohorts and their parents. The subjects include boys at all of the sites and girls at two of the three sites (Denver and

Rochester), who were 7 to 15 years of age at the start of the studies. With the data collected to date, the use of these birth cohorts allows an examination of developmental sequences across the full age span from 7 to 18 (Figure 2.1 summarizes the design of each of the three studies). The inclusion of children (ages 7 through 9) at the Denver and Pittsburgh sites facilitates assessment of the developmental outcome of early problem behavior on later delinquency.

Each site employed a stratified sampling design to obtain a probability sample of children and youth that included an overrepresentation of individuals at high risk for delinquency and drug use. (In Denver and Rochester, risk was determined by residence in areas characterized by social and economic conditions linked to delinquency or by high crime rates, or both. In Pittsburgh, risk was determined by screening interviews with parents, subjects, and a questionnaire completed by teachers.) The results reported in this report, however, have been statistically weighted to represent the general child and youth populations in major segments of the three cities. Although each project covers large geographic areas, the sampling designs of the three studies provide somewhat different coverage of the cities involved. For Rochester, the results are representative of the whole city; for Pittsburgh, results are representative of public schools; and for Denver, the results are representative of specific high risk areas. The sampling procedures of the three studies were designed to insure that a sufficient number of

3 Figure 2.1 Overview of the age ranges in the three projects from 1986-1991.

2-



included in the samples to permit analysis of their development, and at the same time to provide data on conventional developmental patterns in the community samples. All three study samples include whites and minorities from urban environments. It is particularly noteworthy that each site had a relatively high completion rate for their first interview period and that the attrition rates over a four year period have been quite low. All sites had initial cooperation rates in the 84-88 percent range and since that time have interviewed 90 percent or more of the original participants at each wave of data collection over the four year period.

Compared to existing studies on delinquency and substance use, the three studies form a unique entity employing a set of core measures in addition to measures specific to each site. Well over half of the interview items are core measures--asked by all three projects--and many others are asked by two of the three projects. Importantly, these core measures include the theoretically most important concepts--delinquency, family processes, peers, schooling, values and so forth. Because of this, central theoretical relationships can be examined and replicated in all three sites. There is clear agreement that the overall measurement space has been improved by this coordinated effort. Each research team developed measures in its area of expertise and shared those results with the other projects. This both improved the measures being used by each project and expanded the conceptual areas covered. A listing of the core

measures can be found in Table A2.1 in Appendix 2A.

As an example, improved self-report measures were designed, eliminating many of the trivial offenses included in previous works and concentrating on more serious forms of behavior. The drug measure includes items about the use of both prescription and illicit-nonprescription drugs and collects information about frequency of use, amounts used, and reasons for use. Systematic follow-up questions were developed to tap episodic behavior and to determine the seriousness of reported acts. Based on this information, reports of trivial and non-offense behaviors have been removed from the delinquency and drug use measures that are used in this report. More detailed information about the content of the core measures and the procedures used to create them are available in other program documents available from OJJDP or one of the research sites.

In keeping with the mandate for this report, to produce a document that would be of interest to a wide audience of practitioners, policy makers, and others, three basic decisions were made that effect the results reported. First, data at the Pittsburgh and Rochester sites are collected at six month intervals and at the Denver site on an annual basis; consequently for most analyses the data at the Rochester and Pittsburgh sites have been aggregated to reflect annual totals. All sites thus cover annual periods called Year 1, Year 2, and Year 3.

Second, the delinquency and drug use measures were selected

to provide a focus on those delinquent behaviors that are often considered to be of greatest concern. This focus led us to the use of delinquency measures, detailed in Chapter 3, that focus on "street crimes," serious behaviors that occur on the street and that are often of concern to the average citizen and policy makers, alike. In addition, categories of other delinquent behaviors were created. Other serious delinquency includes behaviors that, while not in the street crime category, are nevertheless often considered as serious delinquency. Finally, there is a category of behaviors that are less serious, which has been called minor delinquency. These categories of delinquent behavior - Street, Other Serious, and Minor - also generally reflect the seriousness weighting obtained by Wolfgang, Figlio, Tracy and Singer (1985) in a survey of the general population about opinions of the seriousness of different crimes. By this weighting scheme, offenses in the Street delinquency classification are generally considered more serious than offenses in the Other Serious category and offenses in the Other Serious category are considered more serious than those in the minor category. This delinquency classification scheme was used throughout the report, unless noted otherwise.

The third decision concerned the level of presentation and analyses to be used in the report. With the anticipated dissemination and desired ease of use, it was decided that both analyses and data presentation should be kept generally uniform and straight-forward. As a consequence, most analyses are based

on cross-tabulations of variables with chi-square used to test statistical significance. Other statistical techniques such as correlations, analysis of variance, and structural equation models are used less frequently. In keeping the tables simple in format, specific statistical distributional values were not tabulated. Thus, chi-square values, F-values, exact probability levels for statistical tests, standard errors for maximum likelihood structural equations, and so on are not provided. For many statistical tests, however, statistical significance is indicated by using * - for a .05 level of significance, ** - for a .01 level of significance, and *** - for a .001 level of significance. Two types of cut-offs were established. For epidemiological data (Chapter 3), a minimum number of 20 subjects was required for data to be included in tables (if the number fell below 20, this was indicated by na, not available). For the remaining chapters on relationships between variables, a minimum was set of 10 cases in the marginal cells of two by two tables, with the proviso that if a statistical test proved significant, we would indicate whether or not expected cell value(s) fell below 5 (marked with a b).

It might be observed that the choice of methods and statistical presentation may not satisfy some particularly sophisticated or academic readers. However, given the mandate and goal of this report (See Chapter 1), we consistently chose to make analyses and findings as straight-forward and understandable to as wide an audience as possible.

The main tables in the following text which refer to the total samples at each site, represent both males and females at the Denver and Rochester sites, but include males at the Pittsburgh site only, since that site did not collect data on females. This procedure avoids the alternative of omitting data from the Pittsburgh site from the total tables.

It should be noted that selecting measures, statistical procedures, tabular formats, and in deciding other methodological issues in a setting that required collaboration across the three projects, required accommodation of conflicting views and compromise solutions. It is a tribute to the staff members of all three projects that such accommodations could be made and this report produced. Most of the chapters in this report reflect the work of several individuals, usually involving one or more persons at each site. It was the continuing interaction, sharing of data, ideas and information and good nature among the individuals involved at each site that led to the completion of this report.

In the following sections of this report, the research and sampling designs, description of measures, data collection and preparation for each site are more fully described. A list of the research articles and papers currently available from each site are given in Appendix 2B (Tables B1.2 to B1.3). More complete descriptions of each project and technical reports detailing research design, sampling, and weighting are available from each site.

A DESCRIPTION OF THE DENVER YOUTH SURVEY

OVERVIEW

The major objective of the Denver Youth Survey is to understand the developmental processes, stages, and life experiences that lead to a sustained involvement in delinquent behavior and drug use and to examine these processes, stages and experiences (and the similar factors for pro-social behavior of non-delinquents) to suggest the nature and timing of prevention and intervention programs. Such understanding requires knowledge of the factors that underlie initiation, maintenance and termination of delinquent behavior. The research is guided by a multidisciplinary orientation that integrates psychological and social development, personal attributes, primary socialization contexts such as the family and peer groups, and the influence of larger social systems such as schools and neighborhoods, as major influences on delinquency and drug use. The survey includes examination of the influence of rewards for delinquent behavior and the perceived risks from law enforcement, juvenile courts, parents, schools, and others that may provide suggestions for direct deterrence strategies.

The overall design of the research project is based on a prospective longitudinal survey. The longitudinal survey involves annual personal interviews with a probability sample of five different birth cohorts and their parents selected from areas of Denver, Colorado that have high risk for delinquency. The subjects include approximately equal numbers of both boys and

girls and at the point of the first annual survey they were 7, 9, 11, 13, and 15 years of age. The use of these birth cohorts results in overlapping age ranges during the course of the study, and the use of this "cohort-sequential" design allows examination of developmental sequences across the full age span from 7 to 18 at the current time. Given present knowledge about the dynamics of delinquent/criminal involvement, this extensive age span is needed to insure that experiences and developmental processes can be observed over the full cycle of delinquent activity: prior to the onset of delinquent behavior, during the periods of maximum involvement in delinquency/crime, and during the period in which criminal activity is believed to decline or terminate. The age period covered by this research also affords an examination of the role of the major socializing agents and contexts, including family, school, community and peers. The inclusion of the younger cohorts (7 and 9 year olds) is designed to allow assessment of early indicators of problem behavior and to provide the ability to trace the developmental pathways that lead to delinquency and drug use during adolescence.

The sampling procedure is also designed to insure a sufficient number of serious, chronic offenders for an analysis of their developmental patterns and at the same time provide data on normal developmental processes and patterns. Both are necessary if we are to distinguish between normal and criminal developmental patterns, and to determine the prevalence of various development patterns (particularly those which carry a

high risk of violent or sustained criminal behavior).

DESIGN OF THE DENVER YOUTH SURVEY

Sample Design and Subjects

Selection of survey respondents for the Denver Youth Survey entailed a three stage process. First, neighborhoods were selected based upon their "high risk" status. Risk was determined by a social ecology analysis of Denver that identified "socially disorganized" areas and by official crime rates. Second, all households in these communities were enumerated and finally, interviewers were sent in person to a random sample of these addresses. This last stage required interviewers to speak with an adult and determine the ages of household members in over 20,000 households. All households with an appropriately aged child were eligible to participate in the study and interviewers proceeded to interview the parent/guardian and all eligible youth in these households. The inclusion of all eligible children provides the ability to better study families in general and siblings more specifically. The sampling procedure resulted in the inclusion of a large number of black, Hispanic, and other minority youth in the study that will allow a careful examination of the relationship between race/ethnicity, social status, family background, and delinquency. The sample also includes both "in-school" and "drop out" youth.

Subject Cooperation and Retention

Of the 20,236 households originally sampled, screening for the presence of eligible children was completed in 18,738 (93

percent). Of the remaining households, 419 (2 percent) refused to provide information and 1079 (5 percent) were households in which no one was ever found at home after four or more call backs, but which by appearances and neighbor reports could not be considered vacant. The screened households contained 1794 eligible children and youth of which 1525 (85 percent) completed the first years interview. A summary of the initial completion and retention rates across years by sample characteristics is given in Table 2.1. As can be seen in that table, sample attrition has been held to 7-8 percent (92-93 percent retention rate) over the first three years (and has been held to 8 percent in the fourth year now completed). Also, and of great importance, the underlying distributions on these variables - age, sex, race, social area, and initial delinquency - have not been affected by attrition.

These high retention rates reflect the extensive tracking efforts that have been undertaken and the development of an automated tracking system. Approximately 10-15 percent of the original respondents live outside the Denver area from Pennsylvania to California and from Montana to Texas. Individuals who have left the country, (most of whom have gone to Mexico) are tracked, since they may return, but they are not interviewed. These retention rates also reflect the diligence and skill of staff and interviewers in maintaining good relationships with families included in the study and in obtaining the continued cooperation of reluctant families.

Table 2.1 Sample Characteristics and Retention Rates of
the Denver Youth Survey for the First Three Years

<u>BIRTH YEAR</u>	<u>AGE AT YEAR 1</u>	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
80	7	22.7%	21.9%	22.1%
78	9	20.0	19.7	20.3
76	11	19.7	20.5	20.4
74	13	19.9	20.9	20.6
72	15	17.6	17.1	16.7
<u>SEX</u>				
Male		52.8	52.6	52.5
Female		47.2	47.4	47.5
<u>RACE</u>				
White		10.0	9.7	9.1
Black		33.1	31.4	31.9
Hispanic		44.8	45.2	47.2
Other		12.1	13.7	11.7
<u>SOCIAL AREA CLUSTER</u>				
3		62.4	63.0	62.0
6		12.9	13.0	13.1
7		24.7	24.0	24.9
<u>EVER PREVALENCE OF SELF- REPORTED DELINQUENCY AT YEAR 1</u>				
Minor		53.9	53.5	53.7
Serious		54.9	54.9	54.7
Street		28.4	28.5	28.4
<u>COMPLETED INTERVIEWS</u>		1525	1410	1419
			92.0%	93.0%

Measures Specific to the Denver Youth Survey

Although many of the measures used in this study are the core measures that are common across projects, several measures are specific to the Denver site. Among these site specific measures are (see Table A2.2 in Appendix 2A):

- (1) Measures to help understand how neighborhoods affect the behavior of their residents
 - a. interview information about the social characteristics of neighborhoods and of the social support, networks and integration of respondents within their neighborhoods;
 - b. the availability, use, and satisfaction with community resources and services;
- (2) the existence of neighborhood drug distribution patterns;
- (3) the involvement of youth in drug trafficking (sales, runners, lookouts, mules);
- (4) Moral development (empathy, guilt, and techniques of neutralization);
- (5) self-reported parental criminality and drug use;
- (6) drug use by parents and youth respondents during pregnancy;
- (7) the role of the media in delinquency and violence;
- (8) the social, safety, physical, and teaching environments of schools;
- (9) indicators of rational choice (risks, level of sanctions, and rewards for delinquent behavior);
- (10) use of pornography.

Data Collection and Preparation

Extreme care is taken in the data collection and preparation phases of the Denver Youth Survey to insure valid and complete data are obtained. All interviews are conducted in a face-to-

face format, in absolute privacy, usually in a respondent's home. All completed interviews are edited for completeness and legibility and any interview schedules with missing data are returned to interviewers for completion in further interviews with a respondent. Ten percent of the interviews of each interviewer are validated with short re-interviews of respondents, that ascertain not only the validity of collected data but act as a check on the activities of interviewers in the field and their following of strict privacy and confidentiality practices.

Content coding of open-end responses is performed by carefully trained coders, and inter-coder reliability is monitored throughout the coding process. Data entry is accomplished by highly trained key punch individuals, whose work is validated not only by range and frequency checks but also by visual inspection of entered data and the matching questionnaire.

Following data entry of each phase, scale and construct measure scores are created, their psychometric properties examined and tabulated. Development of improved measures, with increased reliability, is an ongoing effort of the project. Following this activity, all item and scale data from each year is merged with similar data from the preceding years to provide a complete longitudinal analysis file.

As a result of these processes, we believe that a high quality, easy to use analysis set is created, and forms the basis for many of the results reported in this report.

CO-FUNDING/RELATED STUDIES

Three directly related studies have enhanced the scope of the Denver Youth Survey. The first, "Children, Youth and Drugs: A Longitudinal Study" has been funded by the National Institute of Drug Abuse. This four year study permits a more extensive focus on factors related to child and adolescent drug use within the main survey. In addition, the study permitted the interviewing of the two best friends of a sample of the youth in the main survey over a two year period. This additional information about the families, attitudes, and behavior of friends will allow a more complete examination of the role of peers in delinquency and drug use.

The second and third studies are funded by the Research Program on Successful Adolescence of the John D. and Catherine T. MacArthur Foundation. These studies examine the role of neighborhoods in delinquency and drug use. The projects include, in addition to augmentation of the main survey, an additional survey based on a stratified sample of the entire City of Denver. Although official and self-reported crime and delinquency rates often vary by neighborhood, exactly what is a neighborhood, how neighborhood characteristics influence the development of delinquency and drug use, and what characteristics of neighborhoods are important intervention targets are issues about which we have very little information, and provide the focus of the studies.

A DESCRIPTION OF THE PITTSBURGH YOUTH STUDY

OVERVIEW

The main goal of the Pittsburgh project is to investigate the course of antisocial and prosocial behavior from late childhood to middle adolescence, and to identify variables that influence this course. This is achieved by studying the following three samples of first, fourth, and seventh grade boys for a period of three-and-a-half years, and to examine the developmental course of their delinquent behavior, substance use, and mental health problems. A second main aim is to investigate variables that influence youths to progress, in or desist from, antisocial behavior. Some of these variables may change over time and help to explain subsequent changes in child behavior. In particular, the study addresses the extent and speed of a child's progression in antisocial behavior as it relates to variables such as disruptions in socialization processes within the family, deviant peer influences, the child's educational failure, and the child's weak internal control processes. The study also investigates the child's desisting from antisocial behaviors as it relates to the reduction in these variables. In addition, the study addresses variables that are relatively permanent and that help to predict individual differences in the extent and speed of youngsters' progression in antisocial behavior. Examples of these variables are parent(s)' socio-economic background, neighborhood characteristics, and family pathology. The focus on individual differences among

youngsters will also help to account for the behavioral development of "resilient" boys from high risk backgrounds, who do not progress in antisocial behavior.

DESIGN OF THE PITTSBURGH YOUTH STUDY

Sample, Design, and Subjects

Three samples were formed from boys in grades 1 (average age 7), 4 (average age 10), and 7 (average age 13) in the public schools in Pittsburgh (called the youngest, middle, and oldest samples). The choice of the grades was governed by the convergent, accelerated longitudinal design of the study (see Table 2.2), in which subjects, depending on the sample and on what year they were first studied, are followed for three to four-and-one-half years, permitting linkage between the three samples. Thus, the age of the youngest sample at the end of Phase I is the same as the starting age of the middle sample, while the age of the middle sample at the end of Phase I is the same as the starting age of the oldest sample. In that way, the design allows the study of changes in antisocial and prosocial behavior from ages 7 through 16.

Data collection for each sample was divided over two cohorts. Cohort 1 was first assessed in 1987, while Cohort 2 was first assessed in 1988. Subjects were interviewed every six months (for exception see below) in order to prospectively trace the development of antisocial and other problem behaviors. This will help us to reconstruct developmental progressions in these behaviors with a minimum of distortions due to recall bias.

Table 2.2 Pittsburgh Youth Study Assessments

		<u>1987</u>		<u>1988</u>		<u>1989</u>		<u>1990</u>		<u>1991</u>
		Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp
<u>Youngest Sample</u>										
Cohort 1 (N=149)	Age	7	7.5	8	8.5	9	9.5	10	10.5	11
Cohort 2 (N=353)	Age			7	7.5	8	8.5	9	9.5	10
<u>Middle Sample</u>										
Cohort 1 (N=152)	Age	10	10.5	11	11.5	12	12.5	13	-	-
Cohort 2 (N=356)	Age			10	10.5	11	11.5	12	12.5	13
<u>Oldest Sample</u>										
Cohort 1 (N=151)	Age	13	13.5	14	14.5	15	15.5	-	16.5	-
Cohort 2 (N=355)	Age			13	13.5	14	14.5	15	15.5	-

Sp = Spring; Fa = Fall

Assessments include a face-to-face private interview with the child and an interview with his parent, and ratings by his teacher. Additional sources of information collected will be described below.

The schedule of half-yearly assessments was followed for youngest and middle samples, who were interviewed nine to seven times over a three-and-a-half year period. The oldest sample, after an initial six half-yearly assessments, were subsequently interviewed at a yearly interval. The reasons for this change in design were the following. We had requested additional funds to eliminate a gap in assessments for Cohort 1 between the first five-year and the second five-year funding period (Phase II). Unfortunately, this request was not approved. We gave serious consideration to various options, and in consultation with advisors and program staff, chose a different form of data collection. We already had plans for the next funding period to reduce the data collection for the oldest sample to yearly assessments because this group is now increasingly living by themselves and less amenable to half-yearly assessments. Instead of waiting until Phase II of the research with the start of the yearly assessments of the oldest sample, we decided to implement yearly assessments after the Fall phase of 1990 for Cohort 1 and the Fall of 1991 for Cohort 2. Therefore, we omitted the Spring '90 assessment for the oldest sample in Cohort 1 and the Spring '91 assessment for the oldest sample in Cohort 2 (see Table 2.2).

This freed funds for the two additional half-yearly

assessments of the youngest sample, which will make it possible, with new funding, to have repeated assessments between the ages of 7 and 14 for this group without interruptions. This change will prevent a break in assessments and, therefore, preserve the chances of tracing developmental changes over extended periods of time.

Field Progress

Table 2.2 also shows the assessments completed for each of the three samples. This consisted of the following assessments of the youngest sample: nine for Cohort 1, and 7 for Cohort 2; for the middle sample: seven assessments for Cohorts 1 and 2; and for the oldest sample: seven assessments for Cohort 1, and 6 assessments for Cohort 2.

Subject Selection

Subjects were enrolled in the study as follows. A list of potential subjects in grades 1, 4, and 7 was provided to us by the Board of Public Education in Pittsburgh. All appropriate schools were divided into two groups, with the first group of schools being approached in 1987 and the second group of schools in 1988. In the first year, a random sample of boys and their main caretakers from the three grades in school group 1 were asked to participate. The year after, the procedure was repeated for school group 2 (Cohort 1 in the Spring of 1987, Cohort 2 in the Spring of 1988), and involved 3034 boys and their parents of whom 85 percent were actually interviewed. In addition, teacher ratings were obtained on the boys.

After this first assessment, a smaller sample of subjects was selected for follow-up ($N = 1,517$). On the basis of the first (screening) assessment, the upper 30 percent (approximately) of the subjects scoring highest on an index of antisocial behavior were included among those to be followed ($N=250$ high risk in each sample). In addition, a random sample of the remaining 70 percent was taken, equal in size to the high risk sample ($N=250$ in each grade). As a result, the final samples to be followed consisted of 503 boys in 1st grade, 508 boys in 4th grade, and 506 boys in 7th grade.

The resulting samples, judging from Table 2.3, are disadvantaged in terms of living conditions and problem behavior. The prevalence of blacks in the sample, however, is similar to that in the Pittsburgh schools.

Subject Cooperation and Retention

Since 1987-88, the total sample of 1,517 boys has been followed at regular intervals. This Spring (1991), boys in the youngest and middle samples were being assessed for the 7th and 9th time, respectively (assessments H and F in Table 2.4), with a respective participation rate of 92.6 percent and 94.7 percent (see Table 2.4). The last time that we assessed the oldest sample (assessment H), their participation rate was 92.6 percent. These high figures were accomplished partly by careful training of interviewers and office staff to make contacts with study subjects a pleasant experience. Other factors were the diligent searching and persistence in trying to secure the cooperation of

Table 2.3 Population Prevalence of Selected Sample Characteristics of the Pittsburgh Youth Study (weighted percent).

	Youngest Sample (Grade 2)	Middle Sample (Grade 5)	Oldest Sample (Grade 8)
Living with single parent	41.3	33.8	41.5
Black	55.1	52.0	55.5
On Welfare	46.3	37.5	33.9
DSM-III-R Disruptive Disorder (based on mother information only (DISC-P))	16.3	14.8	14.9

reluctant families, the close supervision and support of interviewers, and the designing of a computerized tracking system to monitor ongoing data collection and intervene when needed. In addition, incentives for interviewers were used to encourage them to persist with difficult cases.

An important goal was to avoid losing subjects because of an inability to contact them. At the close of the Spring 1991 data wave, there were no subjects whose whereabouts were not known to us of the total sample of 1,366 boys being assessed at that time. Two subjects who are deceased, however. This high success rate occurred despite a moderately high migration of subjects out of the city. Currently, 12 percent of the subjects live outside of the Pittsburgh area, but within Pennsylvania, with an additional 2.5 percent of the subjects living out-of-state, and one subject lives out of the country. All of these subjects still qualified for the assessments. If we did not know of a qualified interviewer who lived in the area where the subject resided, we conducted telephone interviews in order to obtain the data. The search for subjects' whereabouts was complicated even for those who stayed in the city, because many families continue to move frequently (at every six-months assessment, about 16 percent of the families had moved).

Currently, about 4 percent of the boys are in institutions, either prisons, training schools, after-school confinement, or psychiatric facilities. All of these subjects are still retained in the study; the interviewing of their parents is limited,

Table 2.4 Participation Rates Pittsburgh Youth Study Cohorts 1 and 2 combined

<u>Assessments</u>	<u>Samples</u>			
	Y	M	O	All
Screening	84.6	86.2	83.5	84.8
A*	95.2	96.1	92.5	93.3
B	95.8	97.1	94.9	96.1
C	95.1	96.8	92.2	94.6
D	95.3	95.5	91.2	94.0
E	95.3	93.9	89.5	92.8
F	95.9	94.7	-----	95.3
G**	92.0	-----	90.7	91.3
H**	92.6	-----	-----	92.6

* At assessment A, refusals could be replaced from the Screening sample, matched on risk status.

** Only Cohorts 1 have been completed yet

however, especially when subjects have not been living at home for more than three months in the past half year. In that instance, only demographics, and a few other assessment scales are obtained from the parents.

Extra care was given by our staff to continue the follow-up of subjects through teacher ratings. Over the study period, many of the subjects have fanned out from the initial 40 schools to 76 Pittsburgh Public schools and an additional 140 schools in Pittsburgh and elsewhere. In the last Spring assessment, the total percent of teacher booklets returned was 92 percent.

Selective Attrition.

An important indicator of the success of follow-up assessments is whether selective attrition took place across data waves, since most follow-up studies show a higher attrition for certain groups of subjects. For that purpose, we examined the cooperation rate at follow-up of the subjects who were moderately to seriously delinquent at the beginning of the study. Table 2.5 shows across data waves the retention rate of these subjects. The data show that the percentages of "high risk" subjects, who remained in the study, stayed constant at about 28 percent for the youngest sample, about 50 percent for the middle sample, and about 63 percent for the oldest sample over all data waves. Thus, very little selective attrition took place of those delinquent subjects thought to be at highest risk for attrition. The analyses were repeated with blacks as criterion (see bottom panel in Table 2.5). Again, there was no indication that

selective attrition of blacks occurred across the data waves at follow-up.

Measures Specific to the Pittsburgh Youth Study

The Pittsburgh Youth Study, aside from its measures shared with the other sites, focused on several unique domains including mental health functioning of the subjects, their siblings and their parents. In addition, the Pittsburgh site surveyed a somewhat larger array of family processes than the other sites. Teachers completed twice a year ratings on the boys' behaviors in school. In addition, information about the criminal history of parents, siblings, and other relatives was collected, as well as information on parents' alcohol and drug use, and parents' social isolation, marital happiness and stress. Table A2.3 in Appendix 2A summarizes the main assessment instruments used at the Pittsburgh site. Several other data sources have been accessed. School records on academic performance and disciplinary problems have been scored. In addition, we have gained access to computerized achievement test results from the Pittsburgh Public Schools. Court records have been coded for all youths who have had contact with the juvenile court in Pittsburgh.

Data Collection and Preparation

The aim of the staff at the Pittsburgh site to devise a system to assure data completeness and accuracy. A new data entry system was developed, which involved merging the data checking process with the data entry process, thus combining two steps into one. The screen-image data entry programs helped to

Table 2.5 Percent of Sample at Each Data Wave that Had Been Classified as Moderately Serious or Serious Delinquents at the Beginning of the Study (S + A) (Unweighted Data)

	Assessment Waves				
	S + A	B	C	D	E
<u>Samples</u>					
Youngest	27.8	28.5	28.4	28.4	28.2
Middle	49.8	50.1	49.7	49.5	49.7
Oldest	63.0	63.3	63.4	63.5	63.9

Percent of Blacks in Sample at Each Data Wave (Unweighted Data)

	Assessment Waves				
	S + A	B	C	D	E
<u>Samples</u>					
Youngest	56.1	56.1	56.2	55.6	55.8
Middle	53.6	53.3	53.0	53.1	53.4
Oldest	55.5	56.4	56.5	55.9	55.7

spot missing data and out-of-range values. Research assistants responsible for data entry marked and recorded problems with questionnaires and sent incomplete or incorrect booklets back to the interviewer supervisors. Interviewers were not paid until booklets were completed and corrected. That interviewers actually retrieve the missing data was assured by a system of random calls to 10 percent of the families in question, which also functioned as a check on the general accuracy of the interviewers, and whether the interviews were done in private.

Also, a computerized tracking system has been instituted to track the progress of distribution and retrieval of assessment booklets from the schools. This gives an instantaneous record of how much progress has been made and where returns are lagging.

So far the study has collected in excess of 30,000 assessments from caretakers, subjects, and teachers. Double data entry is virtually up-to-date, even of the latest data collection wave in the Spring of this year. Several smaller data entry projects were undertaken, such as names of siblings and parents (useful for later checking of criminal records), birth history, additional information on absent parents, and reliability and test-retest information. In summary, most data entry tasks have been completed. The cleaning of data is also virtually complete, with data waves S through H having been finished.

A set of procedures for data reduction and documentation have been implemented. In addition, we have made considerable progress with the formulation of the constructs over many data

waves, enabling us to undertake more extensive longitudinal analyses.

CO-FUNDING/RELATED STUDIES

Staff at the Pittsburgh site were able to attract four substudies. These substudies are of great importance because they allow the introduction of alternative and innovative explorations and give us more firm contact with experts in other areas:

Moffitt, T., & Stouthamer-Loeber, M. Neuropsychology, behavior disorder, and delinquency risk, funded by the National Institute of Mental Health. This project was started in May 1990, and focuses on the middle sample. One of its main purposes is to examine different measures of impulsivity as they relate to offending.

Needleman, H., & Loeber, R. Attention deficit, school dysfunction and lead exposure, funded by the National Institute of Health. This project is started in the summer of 1990 and focuses on the youngest sample. The main goal of this research is to examine the relationship between lead toxicity, attention deficits, impulsive behavior, and delinquency and school achievement.

Loeber, R., & Lahey, B. B. Proposed secondary data analyses on Disruptive Behavior Disorders for DSM-IV, funded by the

American Psychiatric Association. This small project started in August of 1990. This project uses Pittsburgh Youth Study data in order to examine the yields of different diagnostic schemes for DSM-IV.

Loeber, R. & Stouthamer-Loeber, M. The feasibility of fathers participating in a large study on juvenile delinquency. Proposal funded by the Program of Human Development and Criminal Behavior, Harvard University (sponsored by the MacArthur Foundation and the National Institute of Justice). This program of research examines the feasibility of contacting in-house and out-of-the house fathers of the boys in the middle sample.

A DESCRIPTION OF THE ROCHESTER YOUTH DEVELOPMENT STUDY

OVERVIEW

The major objective of the Rochester Youth Development Study is twofold. The first is to understand the social and psychological factors that are associated with serious, repetitive delinquency and drug use. The second is to use that information to advance society's efforts to reduce these behaviors.

In accomplishing these tasks the Rochester Youth Development Study is guided by an interactional theory, which holds that the basic cause of delinquency is the weakening of a person's bonds to conventional society. Adolescents who are weakly bonded to the conventional world of family, school, and the like are much less controlled than youth who are strongly bonded. The behavioral freedom that results from weak bonds is likely to lead to delinquent conduct, especially if the person's social environment and peer group reinforce and encourage these behaviors.

The theory highlights three general causal processes. First, it emphasizes the development of delinquency over the life cycle rather than focusing on a single snapshot of the causes of delinquency. For example, the role of the family may play a much greater role at earlier ages, but diminish as the peer group increases in importance during mid-adolescence. Second, interactional theory highlights the importance of causal variables that reciprocally or mutually influence one another

over time. Importantly, delinquency is not viewed simply as an outcome of poor parenting, association with delinquent peers or similar variables. Indeed, delinquency is seen as adversely affecting family relationships, the choice of peers, and similar variables. In this way, delinquency is produced by these more general social factors but also, via feedback effects, is seen as a causal factor in its own continuation. Third, the theory examines the impact of the person's position in the social structure on his or her behavior and on the social processes just discussed.

DESIGN OF THE ROCHESTER YOUTH SURVEY

Sample Design and Subjects

To address these research issues, the Rochester Youth Development Study employs a seven-wave, prospective longitudinal design. The panel sampled 1,000 students in the seventh and eighth grades of the public schools of Rochester, New York. To maximize the number of serious chronic offenders available for the study, the sample includes more youth from the high crime areas and fewer youth from the low crime areas.

Interview data are collected at six-month intervals. One of the student's parents, most typically the mother, is interviewed in the home and the student is interviewed in a private space in their school. This process is repeated at six-month intervals over three and a half years for seven data collection points. Each interview lasts approximately one hour. In addition, data are collected from a variety of Rochester agencies including the

schools, the police, the courts, and social services.

Sample Selection

The final panel consists of 987 students who attended the seventh and eighth grades of the Rochester City public schools during the 1987-1988 academic year. To ensure that serious, chronic offenders are included in the study, the sample overrepresents high-risk youth in the following manner. Males are oversampled (75 percent versus 25 percent), because they are more likely to be chronic offenders and to engage in serious delinquent behavior than are females. In addition, students are selected proportionately to the resident arrest rates of the census tracts in which they live. These rates estimate the proportion of each tract's total population arrested in 1986. Students from tracts with the highest rates are proportionately overrepresented since they are at highest risk for serious delinquency; students from the lower rate tracts are proportionately underrepresented. Because the true probability of a youth living in a particular census tract is known, the sampling strategy provides the means to weight cases to represent the total seventh and eighth grade population.

The resulting sample contains 74 percent boys and 26 percent girls. It contains 69 percent blacks, 17 percent Hispanic and 14 percent white.

Subject Cooperation and Retention

The initial refusal rate of parents and students at Wave 1 was 20 percent. Because of the manner in which subjects who

declined to take part in the study were replaced, however, there was no differential refusal. Specifically, if a seventh grade boy from a certain census tract refused to participate, he was replaced by a seventh grade boy from that same census tract or, when necessary, an adjacent census tract. This procedure allowed us to maintain both the originally planned sample size and the representativeness of the sample.

Once the panel was established at Wave 1 considerable effort has been made by the field staff to retain as many subjects in the study as possible. Strategies include frequent contact with the family, extensive callbacks to interview hard-to-find respondents and tracking all families that move away from Rochester. We have interviewed respondents as far away as Puerto Rico and southern California.

Table 2.6 provides the percentages of the total panel interviewed in each of the first six waves of data collection. At Wave 6, 90 percent of the original sample of students was re-interviewed and remained in the panel. In general, the retention rates through this time period are quite high. Moreover, the greatest amount of attrition was observed from Wave 1 to Wave 2 and attrition appears to have leveled off. Indeed, the increase in attrition for the last four waves is quite small.

An important question that arises, even with minimal loss of subjects, is whether those respondents who drop out of the study are different than those who do not. Comparing the demographic characteristics of the students who were interviewed in the first

Table 2.6 Total Student and Parent Retention Rates, Wave 1
Through Wave 6

	Number of Completed <u>Interviews</u>	Percent of Total Panel <u>n = 987</u>
<u>Students:</u>		
Wave 1	956	97
Wave 2	928	94
Wave 3	912	92
Wave 4	911	92
Wave 5	901	91
Wave 6	890	90

six waves reveals few differences (Table 2.7). The distributions for age, gender, ethnicity, and the proportion of subjects drawn from the different arrest rate tract clusters are quite stable over time. Also, the bottom panel of Table 2.7 presents the Wave 1 prevalence rates for self-reported delinquency recalculated using only the subjects remaining in the panel at each wave. For example, the percentages in the last column are Wave 1 prevalence rates based on only the 890 subjects interviewed at Wave 6. All these percentages are stable across waves indicating that the subjects remaining in the panel are quite similar to the initial panel in terms of self-reported delinquency. Overall, the retention rates for this panel are quite high and attrition does not seem to be differentially distributed.

Measures Specific to the Rochester Youth Development Study

As with the other sites the Rochester Youth Development Study measured many concepts in addition to those included in the core measures. A complete list of the major conceptual areas covered by the project is presented in Appendix 2A, Table A.4.

Some of the major areas emphasized in the Rochester study are:

1.) Social network characteristics of friendship groups including network density, multiplexity, social support and joint participation in conventional activities.

2.) Joint participation of parents and students in conventional activities.

3.) Involvement of peers in activities with the student's family.

4.) Self-concept.

Table 2.7 Characteristics of the Sample at Waves 1 Through 5 (in percentages)

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
<u>Age at Wave 1</u>					
<13	14.0	14.4	14.4	14.4	14.5
13	37.5	38.1	39.0	38.9	39.4
14	37.0	37.5	36.7	36.4	36.0
>14	11.5	10.0	9.9	10.2	10.1
<u>Sex</u>					
Male	74.1	73.7	73.8	74.0	73.8
Female	25.9	26.3	26.2	26.0	26.2
<u>Ethnicity</u>					
White	14.6	14.3	14.6	15.0	14.9
Black	68.1	69.2	68.8	68.4	68.0
Hispanic	17.2	16.5	16.7	16.6	17.1
<u>Census Tracts Grouped by Resident Arrest Rates</u>					
1=highest	33.1	32.8	33.7	33.0	33.3
2	32.1	32.4	32.0	32.7	32.4
3	18.1	18.2	17.9	17.8	17.9
4	9.8	9.8	9.6	9.4	9.6
5	5.2	5.1	5.0	5.3	4.9
6=lowest	1.7	1.7	1.8	1.8	1.8
<u>Ever Prevalence of Self-Reported Delinquency at Wave 1</u>					
General	49.3	48.3	48.6	48.1	48.0
Property	14.5	14.2	14.3	14.3	14.6
Violent	30.8	30.0	30.3	30.2	30.1
Drug	17.8	16.9	17.3	17.3	17.6
N =	956	928	912	911	897*

*Four cases have yet to be added to the system file.

- 5.) Anxiety and depression.
- 6.) Gang membership and behavior.
- 7.) Problematic drug use and negative consequences of drug use.
- 8.) Family, peer and official reactions to delinquent behavior.

Data Collection and Preparation

All data are collected in Rochester by the project's field staff. Great care is taken to ensure the quality and accuracy of the data. For example, extensive training sessions are conducted before each round of interviews, each interviewer's first interviews are observed by supervisors and all interviews are edited for completeness and internal consistency as soon as they are submitted. In addition, a 20 percent random sample of each interviewer's cases are verified by a supervisor shortly after the interview is completed. Verification re-asks a few key questions, ensures that the interview was conducted with the correct subject and that the interviewer was courteous and professional. As a result of these and related procedures the data file is complete, the retention rate is high and reliability analysis suggests that the data are consistent and accurate.

All data preparation -- coding, keypunching and corrections -- takes place in Albany. Self-reported delinquency items are screened to remove inappropriate and trivial items, and particularly complex items -- e.g., family income and household structure -- are evaluated prior to keypunching. All data are

entered in the SPSS data entry program that improves the accuracy of the input data and facilitates the subsequent cleaning of the data file.

After the system file for each wave is created core scales are created, and reliabilities and consistency with prior waves assessed. As a result of this process a data set with many quality-control checks can be available to conduct core analysis within weeks of the completion of a round of interviews.

CO-FUNDING

In addition to its core funding from OJJDP, the Rochester Youth Development Study received three other grants over the past five years to support its activities. They are:

- 1.) Social Network Approach to Drug Use of Minority Youth, National Institute on Drug Abuse, 6/1/88-2/28/90.
- 2.) Social Network Approach to Drug Use of Minority Youth II, National Institute on Drug Abuse, 3/1/90-2/28/92.
- 3.) The Inclusion of Parental Interviews in the Rochester Youth Development Study, National Science Foundation, 7/1/89-6/30/90.

CHAPTER 3

EPIDEMIOLOGY

David Huizinga and Finn-Aage Esbensen
Denver Youth Survey

Rolf Loeber and Welmoet B. Van Kammen
Pittsburgh Youth Study

Terence P. Thornberry
Rochester Youth Development Study

This chapter provides a description of the delinquent behavior and drug use among children and youth at the three study sites of the Program of Research on the Causes and Correlates of Delinquency. The epidemiological data is presented to provide a picture of the levels of delinquency and drug use that are the focus of this monograph, to provide an examination of the similarities and differences between the sites in the rates of these behaviors that may affect other findings, and to draw some suggested policy orientations from the epidemiological findings.

The ability to truly compare the rates of delinquency and drug use in the samples from the three cities is made possible by the use of extensive common measures at each site. The basic measures used to obtain estimates of the volume of delinquency and drug use are essentially identical across sites and all were collected in the same format using face-to-face interviews. As

noted elsewhere, this ability to compare sites on identical measures enhances the validity of the comparison and is a relatively unique feature of the program of research.

The delinquency and drug use measures used in this chapter are listed in Figure 3.1. The delinquency items have been grouped into three scales: Street Offenses, that include offenses that are often of social concern; Other Serious Offenses, that include offenses that are often considered serious, but not with the same concern as Street Offenses; and Minor Offenses, that involve behaviors that are considered less serious. As can be seen in Figure 3.1, different versions of these scales are used for the child respondents (ages 6-10) and for the youth respondents (ages 11-17). The content of the child scales, however, is quite similar to the content of the youth scales and may, perhaps, be viewed as precursors to later behaviors.

Because self-report measures elicit some reports of behaviors that are so trivial or inconsequential that they are not considered valid responses to the interview questions, follow-up questions were asked of all respondents giving positive answers to delinquency and drug use items. Based on this information, all trivial or non-offense behavior reports have been removed from the delinquency and drug use measures at each site. In this sense, the measures used can be considered to have been adjusted for trivial and inappropriate responses.

Although there are differences in sampling design, all three

Figure 3.1 Self-Report Delinquency and Drug Use Scales
Scales for the Youth Samples

"STREET" DELINQUENCY

1. Stolen or tried to steal money or things worth more than \$50 but less than \$100.
2. Stolen or tried to steal money or things worth more than \$100.
3. Stolen or tried to steal a motor vehicle.
4. Gone into or tried to go into a building to steal something.
5. Attacked someone with a weapon or with the idea of seriously hurting or killing them.
6. Used a weapon, force, or strongarm methods to get money or things from people.
7. Physically hurt or threatened to hurt someone to get them to have sex with you.
8. Been involved in gang fights.
9. Snatched someone's purse or wallet or picked someone's pocket.
10. Stolen something from a car.
11. Sold Marijuana.
12. Sold hard drugs.
13. Knowingly bought, sold, or held stolen goods or tried to do any of these things.

OTHER SERIOUS DELINQUENCY

1. Stolen or tried to steal money or things worth more than \$5 but less than \$50.
2. Stolen or tried to steal money or things worth less than \$5.
3. Gone joyriding. . .
4. Hit someone with the idea of hurting them.
5. Thrown objects such as rocks or bottles at people.
6. Had or tried to have sexual relations with someone against their will.
7. Carried a hidden weapon.
8. Purposely damaged or destroyed property that did not belong to you.
9. Purposely set fire to a house, building, car, or other property or tried to do so.
10. Used checks illegally or used a slug or fake money to pay for something.
11. Used or tried to use credit or bank cards without the owner's permission.

MINOR DELINQUENCY

1. Avoided paying for things such as movies, bus or subway rides, food, or computer services.
2. Lied about your age to get into someplace or to buy something.
3. Run away from home.
4. Skipped classes without an excuse.
5. Hitchhiked where it was illegal to do so.

6. Been loud, rowdy, or unruly in a public place.
7. Begged for money or things from strangers.
8. Been drunk in a public place. (delete prostitution from list?)
9. Been paid for having sexual relations with someone. (not in Albany W1)

ALCOHOL USE

1. Drunk beer.
2. Drunk wine.
3. Drunk hard liquor.

MARIJUANA USE

1. Used marijuana or hashish.

OTHER DRUG USE

1. Used tranquilizers such as Valium, Librium, Thorazine, Miltown, Equanil, Meproamate.
2. Used barbiturates, downers, reds, yellows, blues.
3. Used amphetamines, uppers, ups, speed, pep pills, or bennies.
4. Used hallucinogens, LSD, Acid, Peyote, Mescaline, Psilocybin.
5. Used cocaine, or coke other than crack.
6. Used crack.
7. Used heroin.
8. Used angel dust or PCP.

Scales for the Child Samples

"STREET" DELINQUENCY

1. Stolen or tried to steal a bicycle or skateboard.
2. Taken anything at school from the teacher or other kids that did not belong to you.
3. Gone into a building or somebody's house, yard, or garage and taken something that did not belong to you.
4. Taken something from a car that did not belong to you.
5. Hit, slapped or shoved a teacher or another grownup at school.
6. Hit other kids or gotten into a physical fight with them.
7. Snatched someone's purse or wallet or picked someone's pocket.

OTHER SERIOUS DELINQUENCY

1. Broken or damaged or destroyed something belonging to your parents or other people in your family on purpose.
2. Broken or damaged or destroyed something belonging to a school on purpose.
3. Broken or damaged or destroyed other things that did not belong to you on purpose, not counting things that belong to your family or school.
4. Taken some money at home that did not belong to you, like from your mother's purse or from your parent's dresser.

5. Taken anything else at home that did not belong to you.
6. Hit, slapped or shoved your brother or sister or got into a physical fight with him or her.
7. Hit, slapped or shoved one of your parents.
8. Written things or sprayed paint on walls, or sidewalks, or cars where you were not supposed to do that.
9. Purposely set fire to a building, car, or something else, or tried to do so.
10. Carried a weapon with you.
11. Thrown rocks or bottles at people.

MINOR DELINQUENCY

1. Gone into someone's garden, backyard, house, or garage when you were not supposed to be there.
2. Run away from home.
3. Skipped school without an excuse.
4. Been loud or unruly in a public place so that people complained about it or you got into trouble.
5. Avoided paying for things such as movies, bus rides or food.

ALCOHOL USE

1. Drunk beer.
2. Drunk wine.
3. Drunk liquor.

MARIJUANA USE

1. Smoked marijuana.

sites can be described as stratified random samples, in which the strata of greater risk are oversampled (see Chapter 2). This disproportionate sampling of strata requires that appropriate stratum weights be used to obtain estimates for the populations from which the samples were drawn. In this epidemiology chapter, and throughout this report, only the appropriately weighted results are tabulated. Complete descriptions of the sample designs and derivations of stratum weights are available from the individual sites.

It should also be noted that the designs of the surveys involve a "multiple cohort-sequential design", so that the birth or grade cohorts overlap at certain ages. Presuming no substantial cohort differences, this permits the construction of synthetic cohorts so that the full age range of the surveys can be used in examining variable distributions by age, although differences in assessments for children and youth set limits on these comparisons.

The following tables contain annual estimates of (1) the prevalence or percentages of persons engaging in the various Street, Other Serious, and Minor Offenses, (2) the offense rate or the average number of delinquent acts committed by an active offender, (3) the prevalence of persons using various drugs, and (4) the use rate or average number of uses of a drug among active users. A complete set of tables including prevalence, offense and use rates, and variety scored measures, together with the standard error of each of the estimates is included in

Appendix 3. A summary of some of these tables is provided in this chapter.

The data presented in this chapter span three years (1987-1989). The Pittsburgh and Rochester projects collect interview data every six months while the Denver project collects interview data annually. For this epidemiology chapter, and in most other sections of the report, the Pittsburgh and Rochester data have been collapsed into annual periods, and data are presented for these annual periods.

An overview of the prevalence and offense rate of the Street, Other Serious, and Minor delinquency scales for boys and girls is given in Table 3.1. Because of variation across years, due in part to the maturation of the samples, the range (minimum and maximum values) across the three years is tabulated. (The full set of annual estimates is contained in Appendix 3A).

Although there are obvious small differences between the sites, examination of Table 3.1 suggests a rather striking similarity across sites. For the child samples (roughly ages 6-10) 14-19 percent of the boys have engaged in Street Offenses at both the Denver and Pittsburgh sites. The Pittsburgh boys do report higher levels of involvement in Other Serious Offenses and somewhat higher levels in Minor Offenses than at the Denver site (Other Serious: Pittsburgh 37-41 percent, Denver 20-30 percent; Minor: Pittsburgh 23-29 percent, Denver 13-24 percent). Information for girls and offense rates for children were only available at Denver. These data suggest, however, that the girls

Table 3.1 Ranges of Prevalence and Offense Rate for Self-Report Delinquency Measures by Age Group and Gender*

	DELINQUENCY					
	STREET		OTHER SERIOUS		MINOR	
	Preva- lence	Offense Rate	Preva- lence	Offense Rate	Preva- lence	Offense Rate
<u>CHILD</u>						
<u>MALE</u>						
DENVER	14-15%	4- 9	20-30%	8-15	13-24%	4- 5
PITTSBURGH	14-19%		37-41%		23-29%	
<u>FEMALE</u>						
DENVER	5- 9%	3- 7	14-22%	7-13	12-21%	3- 4
<u>YOUTH</u>						
<u>MALE</u>						
DENVER	20-24%	12-15	41-44%	10-15	54-57%	10-14
PITTSBURGH	20-21%	14-25	47-61%	14-18	42-45%	11-19
ROCHESTER	24-26%	10-23	45-54%	15-24	40-43%	12-25
<u>FEMALE</u>						
DENVER	8- 9%	2- 5	24-32%	8-10	52-54%	10-12
ROCHESTER	5-23%	5- 7	25-50%	13-36	35-41%	14-20

* Pittsburgh sample is only males.

are less likely to be involved in either Street or Other Serious Offenses than boys, but their rate of involvement for Minor Offenses equals that of boys. Among those children who engage in these kinds of behaviors the number of times the acts are committed is relatively small and is similar across sexes; 3-9 Serious Offenses, 7-15 Other Serious Offenses and 3-5 Minor Offenses.

For the youth (roughly ages 11-17) 20-26 percent of the males report involvement in Street Offenses for each year, and the average number of offenses committed each year by active offenders varies from 10-25, with overlapping ranges across the sites. For Other Serious Offenses, the prevalence rates for males vary from 41 to 61 percent, with Denver being somewhat lower than the other sites. The offense rate for these offenses varies from 10-24, with some overlap across the sites. The prevalence of Minor Offending among males varies from 40-57 across sites, with Denver having somewhat higher rates than Pittsburgh or Rochester. The offense rate for this scale varies from 10-25, with substantial overlap across sites.

A smaller proportion of girls than boys in the youth samples are involved in Street Offenses. The range of prevalence estimates is 5-23 percent, however the more common range across years and projects is 8-16 percent. The offense rate for Street Offenses is also lower among active girls compared to active boys, ranging from an average of 2-7 times per year. Girls are also less likely than boys to be engaged in other Serious

Offenses, although their offense rate for these offenses are roughly similar. Differences between the sexes in Minor Offending patterns are very small or non-existent for both prevalence and offense rates. There are, however, site differences. Girls in Rochester reported a somewhat higher prevalence of Street crimes than girls in Denver, while girls in Denver report a somewhat higher prevalence for Minor Offenses.

A further examination of the role of age and sex in delinquency is presented in Tables 3.2 and 3.3. Table 3.2 contains the prevalence and offense rates for males across the age range of 6-17 and Table 3.3 contains similar data for females. It should be carefully noted that measures used for Street, Other Serious, and Minor Offenses are different for child and youth samples. Thus, rates for 6-10 year olds are not directly comparable to rates for the 11-17 year olds. However, the child measures are similar to the youth measures and may, perhaps, be considered as precursors to later behavior. For this reason they are tabulated together to indicate the rates of kinds of offenders and kinds of behaviors across the age range.

As seen in Table 3.2, a sizeable proportion of males have initiated some form of delinquent behavior by age 7: 8-16 percent have initiated Street Offenses; 21-37 percent have initiated Other Serious Offenses; and 17-24 percent have initiated Minor Offenses. There is a general trend of an increasing proportion of males involved in these general delinquency categories with increasing age, so that roughly by

Table 3.2: Annual Male Delinquency Prevalence and Offense Rates by Age

DELINQUENCY

AGE	STREET						OTHER SERIOUS						MINOR					
	DENVER		PITTSBURGH		ROCHESTER		DENVER		PITTSBURGH		ROCHESTER		DENVER		PITTSBURGH		ROCHESTER	
	P	OR	P	OR	P	OR	P	OR	P	OR	P	OR	P	OR	P	OR	P	OR
6			9.9						33.5						19.6			
7	8.5	5	15.8				21.2	4	37.3				17.2		24.2			
8	8.6	13	16.7				16.1	3	40.1				12.6		27.4			
9	18.5	8	16.9				32.5	10	41.9				26.5	5	27.0			
10	20.6	12	12.6	2			24.7	16	50.5				15.4	5	27.9			
11	12.5	4	13.2	5			33.6	5	49.7	8			31.4	5	32.5	6		
12	15.7	8	17.7	10	12.7	3	34.2	17	50.2	13	42.9	7	37.6	7	37.7	11	29.1	7
13	18.4	14	22.9	8	14.7	8	44.9	11	65.5	13	45.9	11	51.4	11	47.8	11	34.1	7
14	23.9	15	24.6	12	25.4	13	44.6	13	54.0	18	50.7	17	66.3	12	57.6	14	38.8	14
15	30.4	13	29.1	30	25.7	21	46.2	15	50.0	22	50.5	32	72.7	15	57.3	18	43.1	26
16	28.4	20	38.1	33	34.0	39	44.9	14	51.2	24	50.8	34	76.5	19	56.4	29	53.4	24
17	37.6	14	43.2	49	48.4	22	45.7	10	61.6	27	58.0	25	83.9	15	64.1	36	62.8	24

NOTE: P = Prevalence (%), OR = Offense Rate

Table 3.3: Annual Female Delinquency and Prevalence Rates by Age

DELINQUENCY

STREET

OTHER SERIOUS

MINOR

<u>AGE</u>	<u>DENVER</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>ROCHESTER</u>	
	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>
6												
7	4.7				13.6	8			17.5	3		
8	3.2				12.2				9.0	-		
9	10.0	6			21.7	11			20.3	4		
10	6.1				16.4	4			15.3	3		
11	5.8				20.8	6			24.3	3		
12	3.8		7.6	2	17.7	6	15.4	13	21.4	5	23.3	8
13	9.6	5	13.0	4	32.3	7	38.8	13	54.1	8	27.7	17
14	9.2		19.7	8	26.4	13	39.9	19	65.3	9	39.3	16
15	10.1	9	13.4	4	31.8	10	35.3	27	73.9	13	41.1	19
16	12.3		10.6	3	26.2	9	32.3	47	71.7	18	43.5	21
17	12.5		0.0	-	26.4	11	30.0	39	71.0	14	39.5	21

NOTE: P = Prevalence (%), OR = Offense Rate

age 17: 38-48 percent are committing Street Offenses; 42-62 percent are committing Other Serious Offenses; and 63-84 percent are committing Minor Offenses. It is interesting that at all three sites the prevalence rates are generally increasing through age 17 (a finding also supported in arrest data). The "age curve" that is anticipated from much prior research with a peak in the 15-16 year old age range is not evident. Without further years of data, whether the rates will curve downward or approach an upper level can not be ascertained.

The general similarity of prevalence rates across sites is also evident in these tables. Although there are substantial differences (eg. Denver is somewhat lower in the prevalence of Other Serious Offenses and somewhat higher in Minor Offenses in the older age ranges), given the potential differences among the communities at the three different sites, the fact that estimates are in the "same ballpark" suggests a general uniformity of findings.

For offense rates (the average number of offenses committed by an offender) both Rochester and Pittsburgh show a generally increasing rate with age for all three kinds of offenses, an increase that is not particularly evident in Denver. For example, at age 13 the average number of offenses per active offender varies from 8-14 across all sites and delinquency measures, and by age 17 the range is 22-49 for the Pittsburgh and Rochester sites but 10-15 for Denver. As the data suggest, however, on the average, delinquent offenses are not committed on

a daily basis at any site, but may be committed several times a month.

The delinquency prevalence and offense rates for girls are given in Table 3.3. The percentage of girls engaging in both Street and Other Serious Offenses is smaller than that of boys of the same age. In contrast, the percentage of girls involved in Minor Offenses is often roughly equal to that of boys at certain ages. Also, Rochester shows a more commonly expected age curve for all three delinquency measures, although these curves are not replicated for Street or Minor Offenses in Denver.

Because of the limited number of female street offenders at the Denver site, offense rates for Street Offenses are only available from Rochester. Offense rates for Other Serious and Minor Offenses are available at both sites. As indicated in Table 3.2, not only are a smaller proportion of girls than boys involved in Street Offenses, but the average number of offenses committed by girls engaging in these behaviors is substantially smaller. However, the offense rate among girls for Other Serious and Minor Offenses is roughly the same as for boys.

What emerges from these findings is that a sizeable proportion of boys and girls have initiated some form of delinquency by ages 6-8. The preponderance of Street Offenses are committed by males and by age 17, 38-48 percent of males are involved in these offenses. The prevalence rate for adolescent girls, generally 9-13 percent, however, suggests that involvement in such offenses is not uniquely a male phenomenon. The

prevalence rates for Other Serious and Minor Offenses is also generally substantially higher for males (roughly 45-60 percent in the teenage years) than for females (roughly 26-39 percent in the teenage years). Thus, while a disproportionate amount of delinquent behavior is committed by males, a substantial proportion of this behavior is also committed by females.

RACIAL DIFFERENCES IN DELINQUENCY

Tables 3.4 and 3.5 contain prevalence rates for different racial groups. In Denver, four racial groups are identified - white, black, Hispanic, and "other". In Pittsburgh, two racial groups are identified - white and black, and in Rochester three racial groups are identified - white, black, and Hispanic. For this chapter, and throughout this report, data from the other group in Denver is not tabulated, since there is no corresponding group at the other sites. The data for this group is contained in Appendix 3A, however.

Substantial differences between sites and between types of delinquency exist in the comparative rates of delinquency across racial groups. As indicated in Table 3.4, for children (ages 6-10) Pittsburgh indicates a substantial race difference in the prevalence of Street delinquency, with blacks having higher rates than whites in all three years. Data from Denver suggest no racial differences. For Other Serious Offenses, Pittsburgh finds higher rates by blacks, but Denver finds higher rates for whites, in two of the three years. For Minor Offenses, Pittsburgh again finds higher rates for blacks in two of the three years, while in

Table 3.4 Annual Prevalence Rates of Delinquency by Race for Children*

	<u>STREET</u>					
	<u>DENVER</u>			<u>PITTSBURGH</u>		
	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
White	11.2	7.9	10.6	8.1	11.0	12.2
Black	10.4	12.4	14.5	19.7	23.1	24.7
Hispanic	13.6	8.4	11.3	--	--	--

		<u>OTHER SERIOUS</u>				
		<u>DENVER</u>			<u>PITTSBURGH</u>	
		<u>YEAR</u>			<u>YEAR</u>	
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
White	32.3	22.3	27.0	32.7	32.1	32.7
Black	23.9	15.5	28.5	47.8	42.5	39.6
Hispanic	20.0	16.8	22.4	--	--	--

	<u>MINOR</u>					
	<u>DENVER</u>			<u>PITTSBURGH</u>		
	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
White	25.0	9.9	13.9	26.6	18.1	16.5
Black	27.8	15.1	19.6	30.2	27.0	31.5
Hispanic	18.6	12.2	20.1	--	--	--

Denver, the rank ordering by race varies from year to year and none of the differences are statistically significant.

The offense rates for children are available only for Denver for Other Serious and Minor Offenses, and are given in Appendix 3. These rates are generally less than 10 and there are no significant differences among these rates for different racial groups.

Among youth (ages 11-17) differences between racial groups are also inconsistent across sites, offense type, and years. As indicated in Table 3.5, for Street Offenses, Pittsburgh indicates a consistent and statistically different racial differential, with a greater percentage of blacks reporting involvement in these offenses in all three years. Rochester finds blacks having the highest involvement in two of three years and Hispanics in the third, but Hispanics and whites have similar rates in one year and blacks and whites have similar rates in another. Denver finds blacks and Hispanics having roughly similar rates which are higher than the rates for whites in all three years.

For Other Serious Offenses, Pittsburgh again indicates higher rates for blacks than whites. The rank ordering of racial groups for Rochester varies from year to year, but whites consistently have the lowest prevalence rate across all three years. For Denver, racial differences are small and inconsistent across years.

For Minor Offenses, the racial difference for Pittsburgh is no longer present. For Rochester differences are restricted to

Table 3.5 Annual Prevalence Rates of Delinquency by Race for Youth*

	<u>STREET</u>								
	<u>DENVER</u>			<u>PITTSBURGH</u>			<u>ROCHESTER</u>		
	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
White	7.4%	11.5%	6.8%	15.4%	14.5%	15.4%	7.1%	11.4%	11.2%
Black	14.7	15.2	19.4	23.5	24.6	26.1	29.5	25.5	14.0
Hispanic	15.5	17.5	18.3	--	--	--	20.9	16.3	20.4

	<u>OTHER SERIOUS</u>								
	<u>DENVER</u>			<u>PITTSBURGH</u>			<u>ROCHESTER</u>		
	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
ite	36.9	36.1	31.6	53.6	49.7	45.9	36.9	33.4	29.0
Black	41.9	37.1	35.1	66.4	52.5	48.1	57.5	47.7	36.3
Hispanic	35.0	28.3	33.4	--	--	--	44.7	34.4	37.6

	<u>MINOR</u>								
	<u>DENVER</u>			<u>PITTSBURGH</u>			<u>ROCHESTER</u>		
	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>	<u>YEAR</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
White	48.7	52.8	52.5	43.0	41.9	47.2	34.8	38.4	38.1
Black	53.9	58.3	60.5	46.6	42.2	43.6	45.4	38.3	38.9
Hispanic	54.5	54.4	54.1	--	--	--	33.1	36.0	39.5

only one year and for Denver, whites consistently have the lowest prevalence rates, but the differences between racial groups are small.

Patterns of offense rates by racial groups, given in Appendix 3A, display similar inconsistencies. In general, across sites, delinquency measures and years there are different rank orderings by racial groups.

Overall, although there is some tendency for blacks to have higher prevalence rates, especially in the Pittsburgh study, and often for whites to have the lowest, the inconsistency of rank orderings and lack of replicability across sites makes generalizations concerning race rather tenuous. It does appear, however, that racial differences become more pronounced as the seriousness of offending increases, with, in general, whites having the lowest prevalence rate for Street Offenses across sites and years.

DELINQUENCY VARIETY SCORES

Not tabulated in this chapter but included in Appendix 3A (Tables A3.16 - A3.21) are variety scored delinquency scales by sex, age, and race groups. A variety score is defined as the number of different kinds of offenses in which an individual is engaged over a one year period. Across sites and across sex, age, and racial groups, and across the different delinquency scales, the mean variety scores are generally between 1 and 2. For example, for street offenses, although there are several

offenses in which an individual could engage, most children or youth who engaged in some of the behaviors included in this scale tend to engage in only 1, 2, or 3 of them. Similar findings are obtained from the Other Serious and Minor delinquency scales. In contrast to some previous research, this finding is somewhat unexpected. Klein (1984) has described "cafeteria style delinquency", in which youth try many kinds of delinquency and similar results have been reported by other studies (Hindelang et al.; 1981). While the results obtained in this program of research do not necessarily imply "specialization" in specific delinquency behaviors, the variety scores are somewhat lower than what might have been anticipated. Because this result is unanticipated, it is noteworthy that this finding is robust, being consistent across sites.

DELINQUENCY RATES AMONG TYPES OF DELINQUENTS

The above descriptions have examined the prevalence and offense rates by individual scales. It is also useful to examine the involvement of individuals across all three scales. For this purpose, individuals were classified by the most "Serious" offense they had committed, using the scale definitions previously employed. Thus, "Street Offenders" are those who have engaged in street offenses, "Other Serious Offenders" are those who have engaged in "Other Serious Offenses" but have not engaged in any street offenses, "Minor Offenders" are those who have committed minor offenses but have not engaged in any of the

behaviors listed in the more serious delinquency scales (although they could have engaged in delinquent acts not included in these measures). Separate tables of the offense rates for sex, age, and race groups are included in Appendix 3A (Tables 3A.22 - 3A.30), for data from Year 3 of the studies.

For the child samples, frequency data is only available from the Denver site and the sample for the third year at this site only includes only one cohort. As a result, sample sizes available for the child data are generally insufficient to provide reliable estimates for offense rates. However, as illustrated in the tables in the appendix, only about half of the Street delinquents are involved in either Other Serious delinquency or Minor delinquency. Similarly, only a small proportion of Other Serious delinquents are also involved in Minor offenses. Thus, for children, there is indication that involvement in more serious delinquent acts does not necessarily imply involvement in less serious acts as well.

For the youth samples, there is a general similarity in the pattern of overall results across various demographic groups and only the results for the total samples are described in this chapter. The offense rates for the different offender types for the youth samples at each site across all three delinquency measures are included in Table 3.6.

As seen in that table, over 75 percent of those engaged in Street Offenses are also engaged in Other Serious Offenses and in Minor Offenses, and they are engaged in these offenses at a rate

Table 3.6 Offense Rate of Self-Reported Delinquency by Offender Type as Determined
by Most Serious Type of Offense Committed for Total Sample

		DELINQUENCY								
		<u>Street Offenses</u>			<u>Serious Offenses</u>			<u>Minor Offenses</u>		
		<u>N</u>	<u>Offense Rate</u>	<u>Standard Error</u>	<u>N</u>	<u>Offense Rate</u>	<u>Standard Error</u>	<u>N</u>	<u>Offense Rate</u>	<u>Standard Error</u>
<u>Adolescent</u>										
<u>Denver</u>	Street Offenders	186	10.10	1.59	139	14.28	2.02	165	21.11	2.13
	Serious Offenders				226	6.78	1.22	165	10.58	1.40
	Minor Offenders							264	8.24	1.01
<u>Pittsburgh</u> (Males Only)	Street Offenders	203	24.69	4.96	174	29.76	3.92	169	33.32	4.52
	Serious Offenders				452	17.73	1.81	308	23.54	2.81
	Minor Offenders							433	18.85	2.06
<u>Rochester</u>	Street Offenders	132	18.76	3.83	132	33.33	4.52	132	25.17	3.22
	Serious Offenders				207	21.76	3.13	207	13.08	1.94
	Minor Offenders							123	10.78	1.70

that is usually twice that of those engaging only in other serious or Minor Offenses, or those engaging only in Minor Offenses. As a result, in general, the street offenders accounting for a very disproportionate share of all delinquent acts and are responsible for the commission of all street crimes (by definition). The street offenders not only are the individuals involved in street crimes, but also more likely to be involved in other serious and minor of delinquency and at a higher rate than their youthful counterparts. As a result, the street offenders are considered to be a more serious group of delinquents and become the focus of most of the subsequent chapters of this report.

DRUG USE

The prevalence and use rates (average annual number of uses among those using a given substance) for Alcohol, Marijuana, and Other Drugs are given by age and sex in Table 3.7 and 3.8 and by race in Table 3.9. As seen in Table 3.7 and 3.8, a sizable proportion of children (ages 6-10) have sampled alcohol in the past year (9-16 percent of males in Denver, 20-28 percent of males in Pittsburgh, and 4-12 percent of females in Denver). However, the number of uses among those children who have used alcohol is relatively small (2-6). Thus, it might be said that a small but substantial proportion of children are experimenting with alcohol. In the older ages (11-17) there are generally increasing rates of prevalence and use rates with increasing age,

Table 3.7: Annual Drug Use Prevalence and Use Rates for Males by Age

AGE	<u>ALCOHOL</u>						<u>MARIJUANA</u>						<u>OTHER DRUGS</u>					
	<u>DENVER</u>		<u>PITTSBURGH</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>PITTSBURGH</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>PITTSBURGH</u>		<u>ROCHESTER</u>	
	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>
6			22.3	--														
7	15.3		20.0	--			1.2	--										
8	8.7		20.3	--			0.0	--										
9	14.8	5	27.0	--			1.3	--										
10	10.9	6	27.9	2			2.0	--	0.2									
11	11.1	6	25.0	5			0.9	--	0.9	--								
12	19.8	4	28.9	6	14.2	4	6.6	14	0.8	5	4.0	3	0.6		0.0		0.0	--
13	25.1	7	49.9	5	19.1	10	9.8	14	3.7	3	6.9	8	0.6	--	0.0		0.0	--
14	33.5	14	49.8	10	32.7	22	14.7	14	7.7	17	11.4	30	1.8		1.6		1.3	
15	40.9	21	57.3	20	45.7	17	21.4	28	11.6	23	15.8	35	6.3		2.6		1.7	
16	53.6	22	56.5	26	57.1	38	28.3	27	14.7	21	22.5	87	6.3		3.7		2.2	
17	56.7	34	64.1	28	67.6	38	22.7	33	25.3	40	34.4	42	7.1		7.4		10.2	

NOTE: P - Prevalence (%), OR - Offense Rate

Table 3.8: Annual Drug Prevalence and Use Rates by Age for Girls

<u>ALCOHOL</u>			<u>MARIJUANA</u>				<u>OTHER DRUGS</u>					
	<u>DENVER</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>ROCHESTER</u>		<u>DENVER</u>		<u>ROCHESTER</u>	
<u>AGE</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>	<u>P</u>	<u>OR</u>
6												
7	9.7	3			0.7	--						
8	3.5	3			0.0	--						
9	9.7	4			1.1	--						
10	11.9	5			2.1	--						
11	10.1	7			2.4	--			0.3	--		
12	14.2	--	15.5	2	2.4	--	1.3	--	0.9	--	0	--
13	28.7	10	26.2	9	12.1	14	11.8	6	1.4	--	0	--
14	34.0	8	36.0	25	15.8	16	16.8	12	3.4	--	0	--
15	38.8	14	46.6	9	17.9	24	18.7	12	5.0	--	1.3	--
16	49.7	12	46.6	8	22.6	23	13.6	19	7.4	--	0.5	--
17	45.6	27	36.3	17	18.7	28	36.3	9	3.1	--	0	

NOTE: P = Prevalence (%), OR = Offense Rate

Table 3.9 Overview of Drug Use Prevalence and Use Rates by Race

	<u>ALCOHOL</u>					
	<u>Preva-</u> <u>lence</u>	<u>Use</u> <u>Rate</u>				
<u>CHILD</u>						
<u>WHITE</u>						
DENVER	9-19	--				
PITTSBURGH	15-24	--				
<u>BLACK</u>						
DENVER	11-18	--				
PITTSBURGH	14-21	--				
<u>HISPANIC</u>						
DENVER	6-10	--				
<hr/>						
	<u>ALCOHOL</u>		<u>MARIJUANA</u>		<u>OTHER</u>	
	<u>Preva-</u> <u>lence</u>	<u>Use</u> <u>Rate</u>	<u>Preva-</u> <u>lence</u>	<u>Use</u> <u>Rate</u>	<u>Preva-</u> <u>lence</u>	<u>Use</u> <u>Rate</u>
<u>YOUTH</u>						
<u>WHITE</u>						
DENVER	34-45	14-34	13-18	14-23	3- 7	--
PITTSBURGH	39-49	9-16	3- 7	10-25	0- 3	--
ROCHESTER	32-54	13-22	7-14	25-36	1- 5	--
<u>BLACK</u>						
DENVER	28-34	8-17	9-11	11-25	0- 1	--
PITTSBURGH	32-38	11-15	4- 6	18-24	1- 1	--
ROCHESTER	31-44	13-21	15-19	12-48	0- 0	--
<u>HISPANIC</u>						
DENVER	29-34	14-22	12-17	18-31	3- 5	--
ROCHESTER	25-39	17-42	10-15	37	1- 4	--

so that by age 16-17, roughly half of both boys and girls are using alcohol, with an average frequency of 26-38 times a year. Until the 16-17 year age period, alcohol use rates are approximately equal across the sexes, but at these ages male use rates begin to exceed those of females. Also, somewhat higher prevalence rates are observed in Pittsburgh than at the other sites, especially at the younger ages.

The proportion of children using marijuana is quite small (1-2 percent each year) and although the small number of child users makes estimates of use rates unreliable, children also report only 1-2 uses per year so that use of marijuana in childhood appears to be experimental use. There is a general increase in prevalence and use rates across the 11-17 year age range, with roughly one quarter to one third of the youth using marijuana by age 16-17. At these ages prevalence rates are roughly similar for males and females, although the use rates are somewhat lower for females in Rochester than their male counterparts. Interestingly, use rates for marijuana generally match or exceed the use rates for alcohol, often indicating use several times a month. Thus, while the proportion of youth using marijuana is smaller than the proportion using alcohol, marijuana users report more frequent use of this drug. There appear to be site differences with Denver having slightly higher rates of marijuana use than Rochester, and both of these sites having higher prevalence rates than Pittsburgh until age 17, when the Pittsburgh rate exceeds that of Denver.

The use of other drugs is not asked of the children and so data are not available (other than for glue-sniffing, which is relatively rare in the two samples). Among youth, annual prevalence rates for use of other drugs increases with age but are generally under 10 percent through age 17, and often are much smaller. A sex difference is found in Rochester, with only a few girls using other drugs and only at ages 15 and 16. In contrast, the percentage of girls using other drugs is roughly equal to that of boys in Denver, at least through age 16. In general, there appears to be a site difference, with the use of other drugs being less prevalent in Rochester until age 17. Because of the small number of users of other drugs, estimates of their use rate are unreliable and are not presented.

In overview, alcohol is the drug with the greatest prevalence of use across all ages, with early experimentation and roughly one half or more of both boys and girls using alcohol 1-3 times a month by age 16. Marijuana follows, but for most users of this drug, initiation does not occur until age 12-13. Approximately one-quarter to one-third of the 16-17 year olds use marijuana 1-3 times a month. Finally, other drug use is relatively uncommon with prevalence reaching 7 percent at two sites and 10 percent at the other site by age 17.

RACIAL DIFFERENCES IN DRUG USE

Prevalence and use rates by race for the Child and Youth samples are given in Table 3.7. This table provides a summary

across the three years, and the full set of complete tables can be found in Appendix 3A (Tables 3A.12, 3A.15, 3A.18). As with delinquency, differences between racial groups are often small, inconsistent, and not statistically significant. At all three sites, there is a tendency for a greater proportion of whites to be alcohol users. For marijuana, in Rochester blacks have the highest prevalence, but in Denver blacks have the lowest, and in Pittsburgh there are no black-white differences. Thus, generalizable conclusions about racial differences in drug use do not seem appropriate.

SUMMARY AND SUGGESTIONS

Overall these various findings suggest there is early initiation of both delinquency and drug use by a sizeable proportion of children. We can not say for certain that today's children who misbehave will become tomorrow's adolescent delinquents, since this information will depend on following these children over future years. However, in analyses not shown, use of the multiple cohort design in Denver suggests that a substantial proportion, somewhere between one-quarter and one-half, of the early street and serious offenders continue this behavior across time to the teenage years. Given this, an emphasis on delinquency and drug use prevention in the elementary school years would not seem misplaced.

Both boys and girls are involved in delinquent behavior. However, across all ages a larger proportion of boys are involved

in more serious forms of delinquency than are girls; and among those engaged in the more serious offenses, boys are involved in these acts more often than are girls. These findings suggest that to uniquely focus intervention programs on boys would be inappropriate, but an emphasis in this direction might be profitable.

The prevalence of drug use indicates an ordering of alcohol use, marijuana use, and other drug use. Although a substantial number of youth use marijuana and some youth use other drugs, alcohol use is by far the most prevalent. Alcohol use is initiated early and by mid to late adolescence over half of the youth are reporting relatively regular use. A greater emphasis on the use and abuse of alcohol in the "war on drugs" among teenagers and on alcohol use prevention programs for children would clearly seem needed.

In general, marijuana and other drug use does not appear to have a sizeable initiation rate until the junior high years. Perhaps at this time, or slightly before the end of grade school, prevention programs would have the greatest effect.

Finally, the epidemiological data indicate that delinquency and drug use are significant problems within the populations studied. The magnitude of the problems clearly suggests the importance of understanding, preventing and controlling these behaviors, not only for society at large, but also for individual children and youth, whose lives may be colored and limited by their involvement in substance use and delinquency.

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CHAPTER 4**ARREST AND DELINQUENCY**

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INTRODUCTION

Rates of juvenile arrests are important indicators of the extent of the delinquency problem in any given jurisdiction. Information about the number and types of young people coming to the attention of the police can provide important information for determining policies for future years. Major emphasis has been placed upon a doctrine of incapacitation during the past decade - that is, protecting society from future deviations by incarcerating offenders early in their delinquent careers. Considerable debate, however, surrounds this approach.

The incapacitation of juveniles has been a somewhat controversial issue with the debate centered around two divergent orientations. One view, the labeling perspective, focuses on the effect of arrest and subsequent juvenile justice processing on future behavior and on how the individual and others perceive the individual as a result of the official handling. The other

perspective, the deterrence doctrine, is more concerned with the effect the processing has on subsequent behavior or the effect it has on other people's behavior. With regard to the latter position, advocates maintain that the experience of being arrested and/or incarcerated provides a deterrent effect, thus reducing the probability of subsequent offending by the individual, or by way of example it inhibits other people from engaging in that behavior (see, for example, the review by Williams and Hawkins, 1986). Others maintain, however, that this treatment results in a labeling of the youth and provision of other learning experiences which result in an escalation of illegal behavior (see the recent review by Paternoster and Iovanni, 1989).

While this theoretical debate about the effects of arrest and subsequent processing is of interest to academicians, it is also of policy relevance. Another aspect of the incapacitation issue is raised by individuals less concerned with the effect of the formal processing on the individual. Instead, they direct attention to the potential benefits derived by society at large. A policy of incapacitation, which is initiated by a "get tough" arrest orientation, serves to protect citizens from future victimization at the hands of the offender. Incapacitation removes offenders from society and thus reduces delinquency, or at least this is the argument advanced by its advocates. Nevertheless, there are three established reasons for why incapacitation would not be expected to work. One, as evidenced

by the FBI's Uniform Crime Reports and by the data to be presented in this chapter; only a fraction of all offenders are ever arrested or even come to the attention of the police. Thus only a small subset of the offending population will ever be prevented from offending during a period of incapacitation. Second, there is a continuous and relatively unlimited supply of individuals to replace those who do get caught and/or incapacitated. Third, as evidenced by past research, a number of offenders are essentially "experimenters" and do not repeat their offenses after the first or second time, even without any form of official intervention. For this rather substantial group, incapacitation is an unnecessary policy.

The Philadelphia cohort study examined, among many other issues, the last argument presented above (Wolfgang et al., 1972). While incapacitating all first time offenders until their eighteenth birthday would have prevented 66 percent of the crimes known to the police that were committed by these youth during adolescence, it would have meant incarcerating 1,613 adolescents or 46 percent of the offenders who did not commit an additional offense. This high rate of false positives is problematic from at least two perspectives. One, is it morally appropriate to lock up children after one "run-in" with the law until their eighteenth birthday? Two, is it financially feasible to lock up all first time offenders in order to prevent some as yet to be determined amount of delinquent behavior?

While the federal juvenile justice policy approach as

epitomized by the 1974 Juvenile Justice and Delinquency Prevention (JJDP) Act has been one of removing status offenders from the justice system and of reducing the reliance upon committing youth to training schools, the states have been adhering to a deterrence/incapacitation model. This has resulted in a drastic increase in the number of juveniles confined in both public and private detention facilities without any commensurate decrease in the juvenile crime rate (Schwartz, 1989). The increase is especially marked in private facilities; between 1975 and 1987 private facilities experienced an increase of 122 percent in total admissions (Thornberry, Tolnay, Flanagan, and Glynn 1991:3). Is the practice of committing youth at record numbers a reasonable policy to be pursuing? Or, should our nation's policy be more consistent with the 1974 JJDP Act and emphasize tolerance and de-institutionalization? Examination of the types of youths being arrested and processed can help address this question.

METHODS

In this chapter data from the Denver Youth Survey and the Rochester Youth Development Study are used to focus attention on the juvenile justice system and the processing of juveniles. The Denver study collected detailed self-report data from youth respondents on their involvement with the police and other justice system agencies. A composite measure of police contact, including both the number of arrests and tickets for delinquent offenses received during the past year, was created for use in

these analyses. (Tickets are issued as an alternative to arrest for some offenses in Denver.) In the Rochester study, annual data on arrests and official contacts were obtained from the Rochester Police Department for all students in the sample. Data from both projects have been adjusted to eliminate traffic related offenses.

ANALYSIS

DEMOGRAPHIC CHARACTERISTICS OF ARRESTEES

The first objective of this chapter is to provide a description of who gets arrested and for what offenses. The following analyses reflect data from the three annual periods described in earlier chapters (basically covering the years 1987 - 1989). While the actual numbers change across years, in part reflecting the aging of the two samples, the patterns remain relatively stable. To facilitate presentation, the most recent data (Year 3 - 1989) were selected for discussion in this chapter.

Gender

Males have a higher probability of being arrested than do females (Table 4.1). Given their greater level of involvement in delinquency (as reported in the epidemiology chapter), this should not be surprising. This gender difference is especially pronounced for those youth with two or more arrests. For the Rochester data, for example, 32 percent of the males were arrested during the year, with over half of these (17%) having two or more arrests. This contrasts to 22 percent of the females

Table 4.1 1989 Arrests by Gender

<u>NUMBER OF ARRESTS</u>	<u>DENVER</u> (Self-report)		<u>ROCHESTER</u> (Official)	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
0	471 81%	471 90%	341 69%	390 78%
1	53 9%	31 6%	75 15%	73 15%
≥ 2	58 10%	22 4%	84 17%	37 7%
Total	582	524	500	500
	p < .001		p < .001	

being arrested but only seven percent of these with two or more arrests. Analyses of the Denver data reveal a similar trend with 19 percent of males having an arrest and 10 percent of these having two or more arrests. Also 10 percent of females report an arrest during 1989, with four percent having two or more.

Race

Official arrest and incarceration rates generally reveal substantial ethnic/racial differences despite the fact that most self-report studies fail to find differences in rates of offending. Considerable debate surrounds these divergent findings. Some maintain that the justice system is discriminatory while others fault the self-report data, arguing that blacks tend to underreport their criminal activity and/or whites over-report theirs, and yet others maintain it is a social-class phenomenon and not a race phenomenon at all.

Relying upon the official data obtained from the Rochester Police Department, the Rochester study reports a statistically significant difference in the rate of arrest among black, Hispanic, and white youth (Table 4.2). Whereas 31 percent of blacks were arrested in 1989, only 19 percent of Hispanic and 17 percent of whites were arrested. Statistically significant differences were not found in Denver with its reliance upon self-reported arrests, despite the higher reported prevalence of street offending by both blacks and Hispanics (consult Chapter 3). While not statistically significant, whites, however, did report the lowest level of arrest, 10 percent, while the arrest

Table 4.2 1989 Arrests by Race

<u>NUMBER OF ARRESTS</u>	<u>DENVER</u> (Self-report)			<u>ROCHESTER</u> (Official)		
	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>
0	94 90%	345 85%	408 84%	148 83%	452 69%	131 81%
1	6 6%	29 7%	35 7%	14 8%	119 18%	15 9%
≥ 2	4 4%	31 8%	42 9%	17 9%	88 13%	16 10%
Total	104	405	486	179	659	162

p < .001

rate for blacks and Hispanics were 15 and 16 percent respectively.

Age

Age of juveniles appears to be highly related to the probability of an arrest. In the Denver sample, approximately one-fourth of the two oldest cohorts were arrested during 1989 (25 percent of the 1972 year birth cohort who were 17 year olds in 1989 and 24 percent of the 1974 cohort - 15 year olds). This contrasts with only 10 percent of the 1976 cohort (13 year olds), and only three percent of the 1978 cohort (11 year olds) reporting an arrest during the year (Table 4.3).

Examination of the proportion of youth that had been arrested at least once in their lifetime by each age reveals that a large proportion of adolescents have a run-in with the law (Table 4.4). Not counting traffic offenses, fully 41 percent of the 17 year olds in Denver had been arrested by the end of 1989. When traffic offenses were included, one-half of the 17 year olds had been arrested at least once in their lifetimes. Comparable figures for the 15, 13, and 11 year olds are 33, 13, and two percent. The official arrest data from Rochester present a similar picture to that found in Denver. In Rochester, by age 15, 31 percent of the subjects had at least one arrest. By age 13 the comparable figure was 19 percent and by age 11 it was five percent.

Type of Delinquent

In the epidemiology chapter, a typology of offenders was

Table 4.3 1989 Arrests by Age

DENVER
(Self-report)

<u>ARRESTS</u>	<u>11 yrs</u>	<u>13 yrs</u>	<u>15 yrs</u>	<u>17 yrs</u>
0	287 97%	258 90%	219 77%	181 75%
≥ 1	7 3%	29 10%	68 24%	61 25%
Total	290	287	287	242

p < .001

Table 4.4 Ever Arrested Rate by Age

<u>ARRESTS</u>	<u>DENVER</u> (Self-report)				<u>ROCHESTER</u> (Official)				
	<u>11 yrs</u>	<u>13 yrs</u>	<u>15 yrs</u>	<u>17 yrs</u>	<u>11 yrs</u>	<u>12 yrs</u>	<u>13 yrs</u>	<u>14 yrs</u>	<u>15 yrs</u>
0	301 98%	265 87%	204 68%	160 59%	--	--	--	--	--
1 or more	7 2%	38 13%	98 33%	110 41%	27 5%	53 9%	111 19%	169 29%	177 31%
Total	308	303	302	271					

P < .001

introduced. This typology categorized youth based on the most serious type of delinquent behavior in which a respondent had been involved during a given year. Analyses reported there suggested that the "street" offenders were the ones committing the most serious as well as the most delinquent acts. Given this higher level of involvement in law violating behavior, the question arises, is there a higher rate of arrest among street offenders than among other serious and minor offenders? The answer based upon both official and self-report data is a resounding yes. In the Denver sample, for example, 38 percent of street offenders were arrested for a crime during 1989 (Table 4.5). Comparable figures for "other serious" offenders were 17 percent, minor offenders 14 percent, and non-offenders four percent. And, the majority of street offenders reported two or more arrests during the year. The official data from Rochester are even more striking - 57 percent of street offenders, 29 percent of serious offenders, 23 percent of minor offenders and 18 percent of non-delinquents were arrested during the year. Thus, it appears that a substantial proportion of street offenders are being arrested and that the police are doing an effective job of apprehending the most serious delinquents.

While the above description emphasized the percent of each delinquent type that is arrested, it is perhaps equally important to examine what percent of arrestees come from different delinquency types. This information indicates the mix of individuals, and not the proportion of each type of offender,

Table 4.5 1989 Arrests by Delinquent Typology

<u>NUMBER OF ARRESTS</u>	<u>DENVER</u> (Self-report)				<u>ROCHESTER</u> (Official)			
	<u>Non</u>	<u>Minor</u>	<u>Other Serious</u>	<u>Street</u>	<u>Non</u>	<u>Minor</u>	<u>Other Serious</u>	<u>Street</u>
0	414 96%	227 86%	186 83%	114 61%	373 82%	94 77%	145 71%	56 43%
1	12 3%	22 8%	26 11%	25 13%	48 11%	19 16%	33 16%	38 29%
≥ 2	5 1%	15 6%	14 6%	47 25%	32 7%	9 8%	28 14%	37 29%
Total	431	264	226	186	453	122	206	131
p < .001					p < .001			

that comes to the attention of the police (Table 4.6). In the Denver study, a total of 165 youth were arrested during 1989. Of these, 72 (44%) were street offenders and 24 percent, 22 percent, and 10 percent respectively were categorized as serious, minor and non-offenders based on their self-reported delinquency. It would thus appear that those youth who are involved in the most serious forms of delinquent behavior comprise the largest group of arrestees. However, this does indicate that 32 percent of the youth arrested would be classified as minor or non-delinquents according to self-reports. That is, their most serious offense during the year possibly would have been for such behaviors as disorderly conduct, truancy, or avoiding payment. In the Rochester sample, the official data paint a similar but nonidentical picture. There, 31 percent of those arrested were street offenders, 25 percent had committed other serious offenses, 11 percent were minor offenders, and fully one-third of the arrested population claimed to be non-offenders as classified by their self-reported delinquency. Thus in both sites there is a mix of offenders coming to the attention of the police. Over half of the arrestees are street or other serious offenders but one third or more of the arrestees are non-offenders or minor offenders according to their self-reports.

Type of offense

For what crime do youth report they were arrested? Using the same typology as for the type of offender, the Denver site found that the majority of youth report being arrested for minor

Table 4.6 1989 Arrests by Self-Report Delinquency Type

	<u>DENVER</u> (Self-report)	<u>ROCHESTER</u> (Official)
	<u># Arrested</u>	<u># Arrested</u>
Non-Offense	17 (10%)	80 (33%)
Minor	37 (22%)	28 (11%)
Other Serious	40 (24%)	61 (25%)
Street	72 (44%)	75 (31%)
	—	—
Total	165	244

offenses, regardless of their own delinquency categorization - 66 percent of "street" and 54 percent of "other serious" offenders report being arrested for minor offenses compared to 88 percent and 55 percent for "minor" and non-offenders respectively (Table 4.7 reports the precipitating offense for the entire sample of Denver and Rochester respondents.) Of the "street" offenders, only 13 percent report being arrested for such an offense. Utilizing a different categorization of offenses, the Rochester study found that more than two-thirds of their sample were arrested for person (32%) and property offenses (36%). Relatively few were arrested for status or substance offenses, with 20 percent arrested for other types of offenses.

Longitudinal Analysis

What effect does an arrest have on subsequent rates of offending? This is one of the more hotly debated issues surrounding arrest policies. Utilizing the longitudinal data of the Denver site, attempts were made to determine if an arrest in one year reduces or increases the level of delinquency in the following year. To maintain temporal order, the delinquency typology for 1989 was created based on the time period in which an arrest occurred. Youth with a reported police contact during January through March of 1989 were categorized based upon their self-reported offending for 1988, assuming the prior year offending type would be a better indicator of the behavior pattern at the time of arrest in this time period. For arrests occurring from April through December, the delinquency type was

Table 4.7 1989 Arrests by Precipitating Offense

<u>DENVER</u> (Self-report)				<u>ROCHESTER</u> (Official)				
<u>Type of Offense</u>				<u>Type of Offense</u>				
<u>Non*</u>	<u>Minor</u>	<u>Other Serious</u>	<u>Street</u>	<u>Status</u>	<u>Other</u>	<u>Drugs</u>	<u>Property</u>	<u>Person</u>
45 24%	92 50%	36 20%	11 6%	52 9%	114 20%	13 2%	213 37%	189 32%

* After adjusting for traffic and other non offenses, 45 cases had either only one arrest or information was lacking to determine a precipitating offense.

created based on 1989 levels of self-reported delinquency. Table 4.8 presents a transition matrix that categorizes youth in Year 2 (1988) according to their delinquency type and their arrest status (i.e., no arrests versus one or more). This typology is then cross-tabulated with the youth's Year 3 (1989) offender type.

As can be seen in Table 4.8, among arrested Year 2 non-delinquents, 50 percent became serious or street offenders the following year; while among non-arrested non-delinquents only 23 percent entered these categories. Among minor offenders, 25 percent of those arrested became serious or street offenders, while 26 percent of the non-arrested entered these categories the following year. Among other serious offenders, 62 percent of those arrested and 58 percent of those not arrested became other serious or street offenders; and finally, among street offenders 82 percent of those arrested and 67 percent of those not arrested were other serious or street offenders in the following year. Deterrence advocates, as well as proponents of the "get tough" arrest policy, maintain that arresting juveniles reduces their future involvement in delinquent activity. These findings do not support this general notion.

FLOW OF JUVENILES THROUGH THE SYSTEM

Figure 4.1 depicts the flow of juveniles through the Denver juvenile justice system. In the Denver study, detailed information was collected about reported arrests. In order to focus on persons, and not arrests, the following analysis uses

Table 4.8 Year 3 Delinquent Type by Year 2 Delinquency Type and Arrest (Self-Report) - Denver

		<u>Year 3 Delinquency Type</u>				
<u>Year 2 Delinquency Type</u>		<u>Non-Delinquent</u>	<u>Minor</u>	<u>Other Serious</u>	<u>Street</u>	<u>Total</u>
Non-Delinquent	0 Arrests	165 57%	58 20%	45 16%	21 7%	289
	≥ 1 Arrest	5 41%	1 9%	2 19%	4 31%	12
Minor	0 Arrests	44 24%	96 51%	35 18%	15 8%	189
	≥ 1 Arrest	1 8%	8 67%	3 25%	0	12
Other Serious	0 Arrests	26 19%	32 24%	48 35%	32 23%	138
	≥ 1 Arrest	3 12%	6 27%	6 25%	9 37%	24
Street	0 Arrests	11 12%	19 21%	20 22%	40 45%	89
	≥ 1 Arrest	5 15%	1 3%	10 29%	17 53%	33

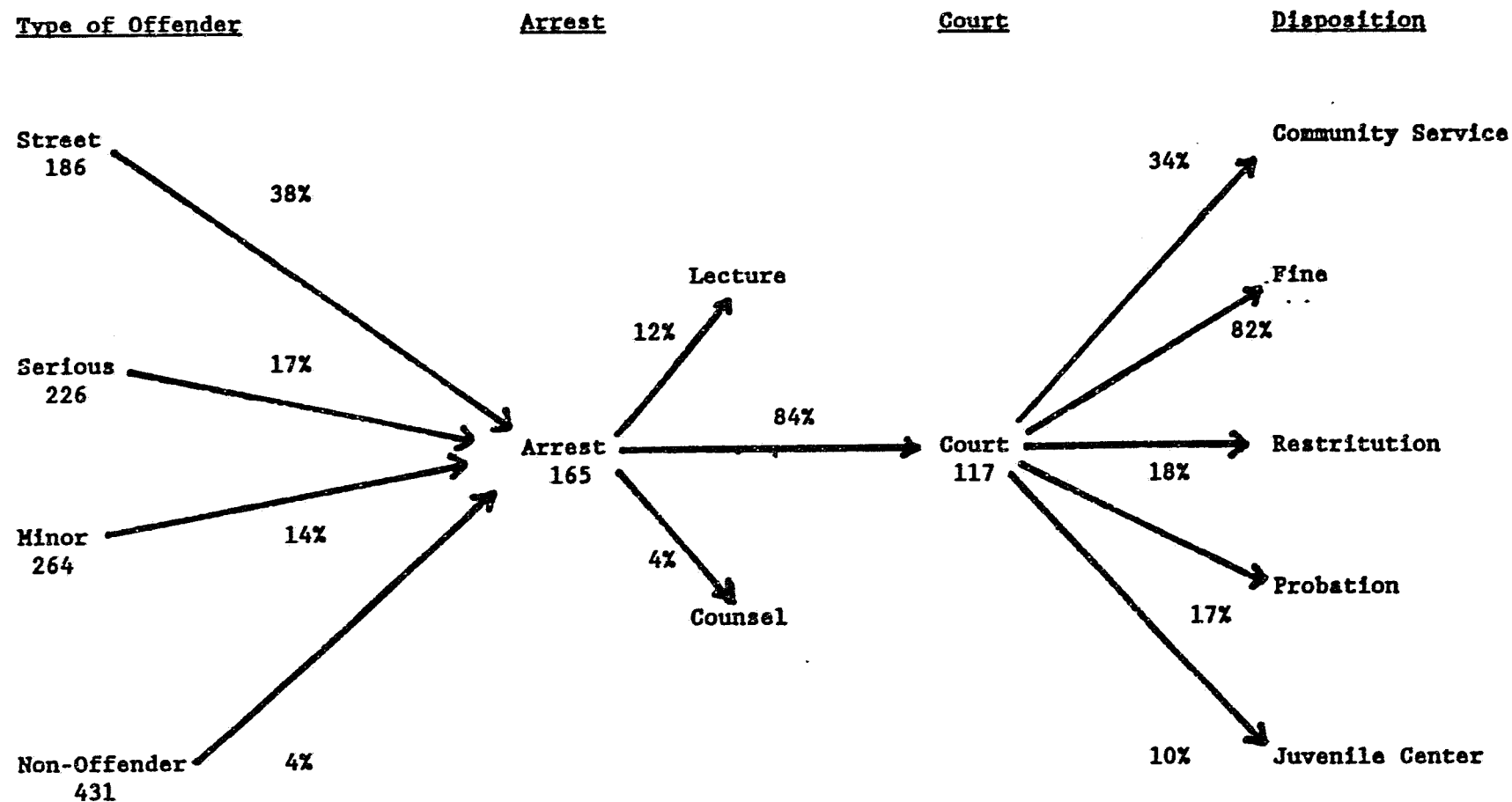
p < .001

the detailed information about the first arrest in 1989 only. Comparable results were obtained for similar analyses performed on the second and third arrests.

Data for 1107 respondents in the Denver study were used to construct the flow chart in Figure 4.1. As discussed previously, within offender types, street offenders have a higher probability of being arrested than do other offender types -- 38 percent of street offenders were arrested compared to only 17 percent and 14 percent of the other serious and minor offenders respectively. While a total of 165 youth had at least one arrest during the year, complete data concerning the first arrest of the year and subsequent processing are currently available for only 139 youth. Once arrested, there is a high probability that the case will go to court, only 16 percent of cases were handled in an informal manner. Of those cases proceeding to court, most resulted in a fine (82%) in addition to some other punitive measure; probation - 17 percent, restitution - 18 percent, community service - 34 percent, and/or commitment to a juvenile facility (10%). These disposition figures are not mutually exclusive since a case can receive multiple penalties.

While the analysis depicts the flow of youth through the system, an additional question about the type of treatment received by different types of offenders is also of interest. Separate flow charts for the delinquent types were constructed and results indicate that street offenders received more severe treatment by the justice system than did other offender types

Figure 4.1 Flow of Juveniles Through the Juvenile Justice System (Self-Report) - DYS, 1989



- Note: 1) Data were available for only 139 individuals who were arrested during the year. The figures for court appearance and disposition are based on these 139 cases.
- 2) Multiple dispositions were reported by some respondents so percentages exceed 100.

(see Table 4.9). While street offenders only comprise 38 percent of youth appearing in court, they account for 55 percent of probation cases, 63 percent of restitution cases and 67 percent of youth committed to a training center.

SUMMARY

These analyses indicate that arrest is a relatively common occurrence for youth in both Rochester and Denver. For the older youth, almost one half have an arrest before they become adults, with the presenting offense most likely being for what we have called minor offenses. Males are substantially more likely to come to the attention of the police, which is consistent with their differential rate of involvement in delinquency. Race differences were found in Rochester but not in Denver. Using official data, Rochester found higher arrest rates for blacks while Denver reported no differences with a self-report technique.

The more serious offenders (i.e., street and other serious) have a higher probability of being arrested than do the non-offenders and minor offenders. And, based on Denver data, the street offenders are also the recipients of harsher sanctions following a court appearance. Of the arrested population, however, somewhat different patterns are found in the two sites. In Denver, the street and other serious offenders comprise 68 percent of the youth arrested in 1989. In Rochester, these more serious offenders comprise only 56 percent of arrestees, with the non-delinquents accounting for one third of all arrested youth.

Table 4.9 Delinquency Type by Official Processing (Self-Report) - Denver

	<u>Warn & Release*</u>	<u>Counsel*</u>	<u>Treat- ment*</u>	<u>Court</u>	<u>Proba- tion</u>	<u>Fine</u>	<u>Resti- tution</u>	<u>Community Service</u>	<u>Committ- ment</u>
None	12 67% 13%	2 10% 11%	0	15 83% 13%	2 20% 15%	14 92% 15%	2 14% 10%	6 38% 14%	2 14% 17%
Minor	23 72% 25%	4 13% 25%	1 4% 10%	23 70% 19%	1 4% 5%	19 88% 20%	3 13% 13%	9 38% 22%	1 4% 8%
Serious	29 73% 31%	4 10% 25%	4 11% 35%	35 88% 30%	5 14% 25%	25 72% 26%	3 8% 13%	11 32% 29%	1 3% 8%
Street	31 63% 33%	7 13% 40%	7 13% 55%	44 90% 38%	11 24% 55%	37 83% 39%	13 29% 63%	14 31% 35%	8 18% 67%
Total	95 68.3%	17 11.9%	12 8.7%	117 83.8%	19 16.6%	94 81.7%	20 17.8%	39 33.9%	12 10.3%

* These three categories include juveniles who also made court appearances.

POLICY IMPLICATIONS

Results from Denver and Rochester suggest, given the current social climate and knowledge available to it, a juvenile justice system working in a reasonable way. A sizable proportion of street and other serious offenders are being arrested, and among this group of more serious offenders the proportion of those receiving more serious sentences is larger than that among the less serious offenders.

On the other hand, most of the arrested street and other serious offenders are being apprehended for minor offenses. This coupled with the fact that a large number of arrestees are only minor or non-delinquents suggests that presenting offense may not be a good indicator of the seriousness of the delinquent involvement of an individual. If this classification of seriousness of offending (presenting offense) is not accurate, then there is a chance that a group of individuals arrested for minor offenses, consisting of both minor and serious offenders, could be placed in the same treatment or service setting; and the influence of the more serious offender on a less serious offender may lead to an undesired outcome.

A policy implication of the above is the need to better understand the role of the juvenile court in the deterrence of, or contribution to, later delinquency. Most research studies seem to focus on population samples, arrested samples, or incarcerated youth and there is little direct information about

the juvenile court¹. Because of this we have virtually no research that obtains self-report delinquency data on those processed by it, and that follows the juveniles through their respective sentences, obtaining information about peers and other factors in treatment settings. Yet such information is vitally important if we are to improve the effectiveness of the juvenile justice system in reducing delinquency.

As indicated at the outset of this chapter, a major concern for policymakers is the effect of arrest on subsequent behavior. That is, does arrest deter individuals or does it in fact increase levels of involvement in illegal acts, or is it totally benign with no measurable effect? While we can assess the short term impact of arrest through the longitudinal data collected to date, the majority of the youth are just now entering the ages in which involvement in delinquency generally tends to begin a downward trend (although this age curve, as discussed in the Chapter 3, has not developed in the current studies) and where one can examine the long term effects on subsequent behavior and self perceptions. Utilizing years 2 and 3 of the Denver Youth Survey data, short term effects of arrest were examined. The data did not support a deterrence argument. In fact, there is preliminary evidence to suggest that arrest is actually

¹ One notable exception to this is the extensive study of the de-institutionalization of the Massachusetts Department of Youth Services conducted by the Harvard Law School during the early 1970s (Ohlin, Miller, and Coates 1976; Coates, Miller, and Ohlin 1978).

associated with an increase in delinquent behavior. Clearly, more rigorous analyses incorporating a wider age span and also replicated at one or both of the other sites is needed to more fully explore this issue, and work in this direction is in progress.

Finally, while a good proportion of the serious offenders are arrested, a sizable proportion are not. The need for an emphasis on **prevention**, to reduce the delinquent behavior of the large number of serious delinquents not apprehended, as well as on treatment, is thus indicated.

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CHAPTER 5

THE CRIME-SUBSTANCE USE NEXUS IN YOUNG PEOPLE

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BACKGROUND.

Progressions in substance use and delinquency seem to follow certain developmental paths in that more serious delinquent acts are preceded by less serious delinquent acts, while more serious forms of substance use are preceded by less serious forms of deviant behaviors. In juveniles, retention is common in that those who have progressed to the more serious forms of deviant behaviors tend to continue their involvement in less deviant acts. This seems to apply to both delinquency and substance use (Loeber, 1988). It is less clear how the development of delinquency and substance use are intertwined, and whether development of one promotes the development of the other in equal measure. It is also unclear to what extent such co-development applies to children in contrast to adolescents.

The onset of substance use is characterized by a gradual development in experimentation with mostly alcohol and cigarettes in elementary school age populations and an accelerated initiation in the use of different substances including marijuana as well as other soft and hard drugs from about age 11 onward.

The onset of beer and wine tend to come first, followed by cigarette smoking and hard liquor, marijuana, psychedelics, and cocaine (Kandel & Logan, 1984). Similarly, studies examining the progressions of juvenile delinquency have found that the values of property stolen increased with age. Not only did less serious theft precede more serious theft, but frequent theft predicted youngsters' engaging in burglaries later (Farrington, 1973).

Reviews of the extensive literature on the co-occurrence of delinquency and substance use in community samples, indicated that involvement in minor and serious forms of delinquency usually preceded use of illicit drugs except alcohol (Huizinga et al., 1989; Loeber, 1988). Huizinga et al. (1989) on the basis of the National Youth Survey concluded that "the most frequent temporal order is minor delinquency, then alcohol use, then Index offending, then marijuana use, and lastly polydrug use" (p. 439). Van Kammen, Loeber, and Stouthamer-Loeber (in press) found in a community sample of boys that the overlap between the secret use of substances and delinquency already occurred as early as the first grade. During late childhood and adolescence, substance use became more firmly intertwined with conduct problems and delinquency.

DEGREE OF CO-OCCURRENCE OF SUBSTANCE USE AND DELINQUENCY

The overlap between substance use and delinquency increased with the seriousness of offending and the use of illegal drugs. As both substance use and delinquency increase with age, their

co-occurrence tends to increase as well (Huizinga et al., 1989; Fagan, Weis, & Cheng, 1990; Van Kammen, et al., in press; White, Johnson, & Garrison, 1985). For example, in junior high school age boys, a higher penetration into the substance use sequence (use of marijuana) was accompanied by an increased engagement in a large variety of more serious delinquent acts such as burglary, stealing cars and assault with weapons (Van Kammen et al., in press). White, Johnson, and Garrison (1985) in a large survey of 12-, 15-, and 18-year-olds, found that the overlap between substance use and delinquency only became substantially different from chance at the most serious levels measured, but this was not the case at all ages. Although the prevalence of substance use was higher in males than in females, for the more serious levels there was a larger overlap between disruptive behavior and substance use for females than for males. This agrees with findings reported by Lewis and Bucholz (1991) in their analysis of the Epidemiological Catchment Area data. They found that conduct disordered women were more at risk to develop alcoholism than antisocial males.

TEMPORAL RELATIONSHIP BETWEEN SUBSTANCE USE AND DELINQUENCY

Turning to the developmental relationships, substance use may have an impact on delinquency over time, while delinquency may also affect substance use (Bukstein, Brent, & Kaminer, 1989). In a study on a mid-adolescent population followed up into early adulthood, Kandel, Simcha-Fagan, and Davies (1986) found that

adolescent drug use weakly predicted later theft both in males and females. Substance use predicted interpersonal aggression in females but not in males. The predictive relationship between the use of legal substances and delinquency probably decreases in strength over time as the use of legal substances becomes more normative with age (Loeber, 1985). In contrast, the use of illegal substances may predict delinquency more consistently. For example, Allen, Leadbeater, and Aber (1991) found in a sample of 15-18-year-old adolescents that soft drug use and male gender better predicted higher levels of delinquency 6-9 months later than would be predicted from delinquency alone. However, there is little empirical support for the notion that drug use has much impact on the onset of serious delinquency or affects an increase in the severity of delinquency (Huizinga et al., 1989).

We now turn to the evidence that delinquency might increase the likelihood of substance use. Huizinga et al. (1989) analyzed six waves of the National Youth Survey and found that minor delinquency predicted polydrug use (use of illicit drugs four or more times); also minor offending preceded alcohol use in every case for those who reported both. This agrees with findings reported by Margulies, Kessler, and Kandel (1977) showing that juveniles' involvement in a variety of delinquent behaviors was predictive of the onset of drinking alcoholic beverages.

While the delinquency-substance use interrelationship during adolescence has been widely investigated, there is still a scarcity of studies showing the connection between delinquency

and substance use in late childhood and early adolescence (Van Kammen et al., in press). It is unclear whether the association between substance use and delinquency during pre-adolescence is the same as during adolescence. The direction of the effect is likewise unclear for different age groups: does delinquency over time equally well stimulate substance use as does substance use stimulate delinquency? And does the relationship hold at all levels of substance use, or only for the more serious levels? Finally, research findings in this area are often limited to certain subject groups, but rarely make it possible to compare results across different gender and ethnic groups.

This chapter addresses the following questions:

- 1) Are substance use and delinquency significantly related in that the more serious the level of delinquency the more serious the level of substance use?
- 2) Does the relationship hold for both younger and older children?
- 3) Does the relationship between substance use and delinquency hold for different ethnic groups and for each gender?
- 4) Is the likelihood of substance use given delinquency higher than the reverse?
- 5) Does a change in substance use affect a change in delinquency over time or is the reverse more common?

METHODS

Analyses were based on a hierarchical scoring of the main variables of delinquency and substance use. For each of the three years, subjects were grouped according to the most seriously delinquent act they had committed or according to the most advanced substance they had used. For delinquency, four groups were formed: (a) a nondelinquent group; (b) a minor delinquent group; (c) another serious delinquent group; and (d) a street delinquent group. Three substance use groups consisted of: (a) a nonsubstance use group; (b) an alcohol group; and (c) a marijuana and other soft and hard drug group. For the children, the alcohol and the marijuana groups were combined because very few subjects had been involved in the use of illegal substances. Therefore, most of the substance use in this age group consisted of experimentation with beer, wine and hard liquor.

In order to examine the relationship between the changes in substance use and the changes in delinquency, two sets of change scores were constructed for Years 1 to 2, and for Years 2 to 3. A positive substance use change score indicated that the subject had advanced over time to a higher (and more serious) level of substance use. A zero-score indicated that no change had occurred, while a negative score meant that the individual had decreased in the seriousness of his/her substance use. A similar change score was devised for delinquency.

FINDINGS FOR CHILDREN**CONCURRENT RELATIONSHIP**

Table 5.01 shows the concurrent relationships between substance use and delinquency for children at the Denver and Pittsburgh sites for Year 1, 2 and 3. All six comparisons were statistically significant. For example, in Year 1 at the Denver site, 59.1 percent of those children who had been involved in substance use were also classified in one of the three delinquency categories in the same time period (sum of 21.0 percent, 26.4 percent, and 11.7 percent) compared to a base rate of 39.6 percent. 40.9 percent of the substance using children did not report any delinquent acts. This involvement in substance use without delinquency gradually decreased for the Denver children from Year 1 to Year 3 (from 40.9 percent, to 32.4 percent, and to 23.4 percent), while for the subjects in the Pittsburgh study these percentages fluctuated over the three years (27.0 percent, 34.8 percent, and 24.9 percent).

Table 5.01 also shows the likelihood that those children who engaged in delinquent acts also were using a substance. For example, in Denver about 20 percent of the children engaging in street or other serious crime had also used a substance, compared with only 4.4 percent of the nondelinquent children. The likelihood of substance use given street crime was not consistently higher than the likelihood of street crime given substance use. Also, comparisons between different groups of delinquents (those engaged in street crime, etc.) did not show

substantial incremental difference in substance use. This applied to all three years of the data collection. As for the nondelinquent versus the delinquent groups, only 11.0 percent of those children in Pittsburgh who had not engaged in a delinquent act in Year 1, were involved in substance use, while this percentage was more than twice as large for the most serious group of delinquents (25.2 percent). The Denver data showed results which were stronger and in the same direction: the proportions differed by a factor of about three to five. Thus, even for young children's engagement in street crime increased the likelihood of them also having used substances.

When only the white children were considered, the findings were replicated at the Pittsburgh site (Table A5.01 in Appendix 5.1), although some of the proportions were more extreme: In Year 2, about half (55.1 percent) of the white boys who engaged in street crime had used substances compared to 17.5 percent who had not been involved in any delinquent act. There was a tendency for the probability of substance use given other serious crime to be smaller than the probability of other serious crime given substance use. Turning to black children, the results at the Denver site did not reach statistical significance. At the Pittsburgh site, however, a clear relationship was found between substance use and delinquency for each of the three years. Black children (Table A5.02) who used substances were slightly more likely to engage in street crime than white children (e.g., for Year 3, 41.0 percent vs. 26.2 percent). For Hispanic children at

Table 5.01 : Relationship between Substance Use and Delinquency for Child in the Total Sample

<u>YEAR 1</u>			<u>STREET CRIME</u>	<u>OTHER SERIOUS CRIME</u>	<u>MINOR CRIME</u>	<u>NO CRIME</u>	<u>X²</u> (3)
<u>DENVER</u>	<u>SUBSTANCE USE</u> (14.1)y	A	(11.7)x 21.0	(18.1)x 26.4	(9.8)x 11.7	(60.4)x 40.9	***
		B	25.4	20.6	16.8	9.6	
<u>PITTSBURGH</u>	<u>SUBSTANCE USE</u> (19.9)y	A	(14.5)x 18.4	(28.9)x 45.0	(8.1)x 9.7	(48.4)x 27.0	***
		B	25.2	30.9	23.6	11.0	
<hr/>							
<u>YEAR 2</u>							
<u>DENVER</u>	<u>SUBSTANCE USE</u> (9.3)y	A	(9.9)x 23.0	(16.5)x 36.3	(5.4)x 8.3	(68.1)x 32.4	***b
		B	21.5	20.4	14.4	4.4	
<u>PITTSBURGH</u>	<u>SUBSTANCE USE</u> (21.2)y	A	(17.7)x 31.2	(24.7)x 30.1	(5.9)x 3.9	(51.7)x 34.8	***
		B	37.5	25.8	13.9	14.3	
<hr/>							
<u>YEAR 3</u>							
<u>DENVER</u>	<u>SUBSTANCE USE</u> (9.5)y	A	(13.0)x 22.4	(27.0)x 42.5	(6.8)x 11.7	(53.2)x 23.4	*b
		B	16.3	14.9	16.4	4.2	
<u>PITTSBURGH</u>	<u>SUBSTANCE USE</u> (14.8)y	A	(19.2)x 33.9	(23.3)x 31.6	(4.5)x 9.6	(53.0)x 24.9	***b
		B	26.1	20.0	31.4	6.9	

Note : A = column given row; B = row given column; *** $p \leq 0.001$; * $p \leq .05$;
 x = base rate of delinquency group; y = base rate of substance use group.

the Denver site, substance use was also related to delinquency, but for Years 1 and 2 only (Table A5.03). For either blacks or Hispanics, there was no clear trend for the probability of substance use given delinquency to be different from the probability of delinquency given substance use.

Table A5.04 shows the results for males only, which largely replicated the results for the full sample at the Denver and Pittsburgh sites. The probability of substance use given delinquency was about the same as the probability of delinquency given substance use. For girls, the significance tests could only be calculated for Year 1 and 2 for the Denver site. Substance use and the delinquency groups were significantly related for Year 2 but not for Year 1 (Table A5.05). For Year 2, among those who had committed delinquent acts, the group who had engaged in other serious crime (rather than street crime) had the highest percent of substance use (28.2 percent). Similarly, 53.8 percent of the girls who had used a substance were also involved in other serious crime. As for girls involved in substance use in Year 1, more than half (52.7 percent) were classified in the nondelinquent group, while this percentage decreased to about a quarter (27.7 percent) in Year 2. A comparison between girls and boys revealed that the overlap between substance use and other serious delinquency was larger for females than for males (53.8 percent versus 22.5 percent), but only in Year 2 and not in Year 1.

LONGITUDINAL RELATIONSHIPS

Table 5.02 shows the relationship between substance use and delinquency over time. From Year 1 to 2, 37.8 percent of the children at the Denver site showed an increase in delinquency given an increase in substance use, whereas the converse (an increase in substance use, given an increase in delinquency) was less common (10.4 percent). Also, a decrease in delinquency given a decrease in substance use was more than twice as likely than a decrease in substance use given a decrease in delinquency (36.0 percent vs. 14.8 percent). These findings were repeated at the Pittsburgh site for Years 1 to 2, and for Years 2 to 3, but they did not reach statistical significance for the latter year. Thus, it appeared that an increase in substance use at the beginning of the study was more associated over time with an increase in delinquency than the converse, while a decrease in substance use was more associated with a decrease in delinquency than the converse.

These results, however, were not replicated for white and Hispanic males, partly because of small sample sizes (Tables A5.06 and A5.08). The aforementioned covariation between substance use and delinquency was observed for black children but only for Years 1-2 (Table A5.07). When the findings were broken down by gender, again significant relationships were found only for Years 1-2 (Tables A5.09-A5.10).

Table 5.02 : Relationship between Changes in Substance Use and Delinquency for Child in the Total Sample

YEAR 1 AND YEAR 2 X² (4)

<u>DENVER</u>	% (DEL > / SUBST >)	37.8	*b
	% (SUBST > / DEL >)	10.4	
	% (DEL < / SUBST <)	36.0	
	% (SUBST < / DEL <)	14.8	

<u>PITTSBURGH</u>	% (DEL > / SUBST >)	37.2	*
	% (SUBST > / DEL >)	15.7	
	% (DEL < / SUBST <)	45.5	
	% (SUBST < / DEL <)	15.1	

YEAR 2 AND YEAR 3 X² (4)

<u>DENVER</u>	% (DEL > / SUBST >)	46.7	*b
	% (SUBST > / DEL >)	9.6	
	% (DEL < / SUBST <)	39.5	
	% (SUBST < / DEL <)	10.7	

<u>PITTSBURGH</u>	% (DEL > / SUBST >)	36.5	
	% (SUBST > / DEL >)	9.6	
	% (DEL < / SUBST <)	32.2	
	% (SUBST < / DEL <)	18.7	

Note : > = increase; < = decrease; * $p \leq 0.05$; NA = Not Applicable; b = one of cells in table has an expected value < 5.

In conclusion, several findings on children were notable:

- 1) A consistent relationship was observed between substance use and delinquency in children.
- 2) The probability of substance use given street crime tended to be smaller than the probability of street crime given substance use for the white children only but not for other racial groups.
- 3) Over time, the likelihood of parallel changes in delinquency given a change in substance use was higher than changes in substance use given a change in delinquency.

FINDINGS FOR YOUTH

CONCURRENT RELATIONSHIPS

Table 5.03 shows the relationship between different levels of substance use with the different levels of delinquency for the full Youth sample (recall the hierarchical arrangement of the variables). The relationship between substance use and delinquency was significant at the three sites for each of the three years.

When comparing conditional probabilities, Table 5.03 shows that the likelihood of alcohol use given delinquency was not consistently higher than the likelihood of delinquency given alcohol use. At the Pittsburgh site the conditional relationship was stronger for alcohol given street crime for each of the three years compared to the two other sites.

Table 5.03 also shows the conditional probabilities of different levels of delinquency and marijuana and other drugs (in

the Tables referred to as drugs). For example, more than a third (36.5 percent) of those using drugs at the Denver site in Year 1 also committed street crime, and only 6.1 percent of the drug users did not commit a crime, while the base rate for using drugs was 13.8 percent. Conversely, more than a third (35.2 percent) of those who committed street crime also used drugs. The findings at the other two sites were in the same direction, although a much higher percent of the drug users at Pittsburgh and Rochester committed street crime (79.0 percent in Pittsburgh and 64.1 percent in Rochester). This difference between the sites decreased somewhat for Years 2 and 3. It should be noted that the likelihood of youth's delinquency given drug use tended to be higher than the likelihood of the drug use given delinquency, although the magnitude of the difference varied much between sites.

Table 5.03 also shows that the probability of drugs given street crime was higher than the probability of alcohol given street crime. The probability of drugs given street crime was about three times as high as the base rate, while the probability of alcohol use given the base rate was less than two times as high. Thus, youngsters involved in the most serious form of crime had a high chance of having advanced to the more serious level of substance use.

Table 5.03 : Relationship between Substance Use and Delinquency
for Youth in the Total Sample

<u>YEAR 1</u>			<u>STREET CRIME</u>	<u>OTHER SERIOUS CRIME</u>	<u>MINOR CRIME</u>	<u>NO CRIME</u>	<u>X² (6)</u>
<u>DENVER</u>	<u>MARIJUANA + OTHER DRUGS</u> (13.8)y	A	(14.3)x 36.5	(26.6)x 37.2	(21.3)x 20.2	(37.7)x 6.1	***
		B	35.2	19.3	13.1	2.2	
	<u>ALCOHOL</u> (18.6)y	A	21.4	32.0	26.7	18.6	
		B	28.4	22.9	23.3	9.2	
<u>PITTSBURGH</u>	<u>MARIJUANA + OTHER DRUGS</u> (4.1)y	A	(19.9)x 79.0	(43.7)x 21.0	(8.1)x 0.0	(28.3)x 0.0	***b
		B	16.3	2.0	0.0	0.0	
	<u>ALCOHOL</u> (39.1)y	A	27.5	46.9	7.1	18.5	
		B	54.2	42.0	34.1	25.5	
<u>ROCHESTER</u>	<u>MARIJUANA + OTHER DRUGS</u> (12.2)y	A	(23.4)x 64.1	(31.1)x 28.9	(7.5)x 5.0	(38.0)x 2.0	***
		B	33.4	11.3	8.1	0.6	
	<u>ALCOHOL</u> (19.0)y	A	37.4	35.4	6.1	21.2	
		B	30.4	21.6	15.3	10.6	

Table 5.03 (continued)

<u>YEAR 2</u>			<u>STREET CRIME</u>	<u>OTHER SERIOUS CRIME</u>	<u>MINOR CRIME</u>	<u>NO CRIME</u>	<u>X² (6)</u>
<u>DENVER</u>	<u>MARIJUANA + OTHER DRUGS</u> (15.8)y	A	(15.4)x 42.5	(21.7)x 28.4	(26.0)x 22.7	(37.0)x 6.5	***
		B	43.6	20.7	13.8	2.8	
	<u>ALCOHOL</u> (20.7)y	A	20.0	27.3	38.9	13.8	
		B	27.0	26.7	31.3	7.8	
<u>PITTSBURGH</u>	<u>MARIJUANA + OTHER DRUGS</u> (4.7)y	A	(19.9)x 63.8	(34.6)x 33.3	(9.7)x 0.0	(35.8)x 2.9	***b
		B	15.0	4.5	0.0	0.4	
	<u>ALCOHOL</u> (30.4)y	A	30.1	40.5	8.7	20.6	
		B	46.1	35.6	27.3	17.5	
<u>ROCHESTER</u>	<u>MARIJUANA + OTHER DRUGS</u> (17.1)y	A	(20.4)x 50.6	(24.7)x 34.3	(9.8)x 7.3	(45.1)x 7.8	***
		B	42.3	23.7	12.7	3.0	
	<u>ALCOHOL</u> (21.6)y	A	26.8	34.7	15.6	22.8	
		B	28.4	30.4	34.5	10.9	

Table 5.03 (continued)

<u>YEAR 3</u>			<u>STREET CRIME</u>	<u>OTHER SERIOUS CRIME</u>	<u>MINOR CRIME</u>	<u>NO CRIME</u>	<u>X²</u> (6)
<u>DENVER</u>	<u>MARIJUANA + OTHER DRUGS</u> (14.9)y	A	(19.7)x 47.1	(22.6)x 25.7	(29.4)x 24.9	(28.2)x 2.3	***
		B	35.5	16.9	12.6	1.2	
	<u>ALCOHOL</u> (23.6)y	A	25.1	27.7	31.3	15.8	
		B	30.0	28.9	25.1	13.2	
	<u>MARIJUANA + OTHER DRUGS</u> (6.9)y	A	(20.0)x 61.2	(29.9)x 28.6	(11.6)x 5.1	(38.6)x 5.1	***
		B	21.0	6.6	3.0	0.9	
<u>PITTSBURGH</u>	<u>ALCOHOL</u> (30.0)y	A	31.0	31.0	12.4	25.7	
		B	46.5	31.2	32.1	20.0	
	<u>MARIJUANA + OTHER DRUGS</u> (14.2)y	A	(13.6)x 48.7	(23.5)x 31.6	(14.0)x 10.5	(48.9)x 9.2	***
		B	51.0	19.1	10.7	2.7	
	<u>ALCOHOL</u> (32.2)y	A	15.5	30.5	23.8	30.2	
		B	36.7	41.8	54.8	20.0	
<u>ROCHESTER</u>	<u>MARIJUANA + OTHER DRUGS</u> (14.2)y	A	(13.6)x 48.7	(23.5)x 31.6	(14.0)x 10.5	(48.9)x 9.2	***
		B	51.0	19.1	10.7	2.7	
	<u>ALCOHOL</u> (32.2)y	A	15.5	30.5	23.8	30.2	
		B	36.7	41.8	54.8	20.0	
	<u>MARIJUANA + OTHER DRUGS</u> (14.2)y	A	(13.6)x 48.7	(23.5)x 31.6	(14.0)x 10.5	(48.9)x 9.2	***
		B	51.0	19.1	10.7	2.7	

Note : A = column given row; B = row given column; *** $p \leq 0.001$;

x = base rate of delinquency group; y = base rate of substance use group.

Comparisons between different groups of delinquents (those engaged in street crime, etc.) showed substantial incremental differences in drug use. At all three sites, the percentage of nondelinquents involved in marijuana and other drugs was small and was even lower than the percentage of nondelinquents who were engaged in alcohol use only.

The results were largely replicated for white youth, although this is more evident for Years 2 and 3 than for Year 1, when substance use had increased (Table A5.11). Similar results as for the total sample were observed for black youth and Hispanic youths across all years and sites (Table A5.12-A5.13).

Tables A5.14-A5.15 show the findings for each gender. For males, the probability of street delinquency given drug use was higher than the reverse. Findings for females differed from, those for males in that the probability of street delinquency given drug use tended to be smaller than the probability of drug use given street crime. Also serious delinquent acts other than street crime seemed to play a more important role in females given they were involved in drug use. There did not seem to be a clear incremental effect for alcohol for males or females.

LONGITUDINAL RELATIONSHIPS.

We saw that for the children a change in substance use was related to a change in delinquency. This finding was replicated for the older youth at each of the three sites and for each of

Table 5.04: Relationship between Changes in Substance Use and Delinquency for Youth in the Total Sample

YEAR 1 AND YEAR 2 χ^2 (4)

<u>DENVER</u>	% (DEL > / SUBST >)	37.8	***
	% (SUBST > / DEL >)	32.7	
	% (DEL < / SUBST <)	43.2	
	% (SUBST < / DEL <)	25.2	
<u>PITTSBURGH</u>	% (DEL > / SUBST >)	37.9	***
	% (SUBST > / DEL >)	22.1	
	% (DEL < / SUBST <)	39.8	
	% (SUBST < / DEL <)	27.5	
<u>ROCHESTER</u>	% (DEL > / SUBST >)	23.5	***
	% (SUBST > / DEL >)	23.1	
	% (DEL < / SUBST <)	45.4	
	% (SUBST < / DEL <)	18.3	

YEAR 2 AND YEAR 3 χ^2 (4)

<u>DENVER</u>	% (DEL > / SUBST >)	48.2	***
	% (SUBST > / DEL >)	28.7	
	% (DEL < / SUBST <)	34.8	
	% (SUBST < / DEL <)	26.8	
<u>PITTSBURGH</u>	% (DEL > / SUBST >)	30.7	**
	% (SUBST > / DEL >)	22.9	
	% (DEL < / SUBST <)	33.3	
	% (SUBST < / DEL <)	19.5	
<u>ROCHESTER</u>	% (DEL > / SUBST >)	29.7	***
	% (SUBST > / DEL >)	25.3	
	% (DEL < / SUBST <)	22.1	
	% (SUBST < / DEL <)	45.8	

Note : > = increase; < = decrease; *** $p \leq 0.001$; ** $p \leq 0.01$.

the years considered, i.e., changes between Year 1-2, and between year 2-3 (Table 5.04). Typically, the probability of delinquency increasing given an increase in substance use was either about the same or higher than the converse. Also, the probability of a decrease in delinquency, given a decrease in substance use was larger than the reverse in 5 out of six comparisons. Tables A5.16-A5.17 shows the results for different ethnic groups. The findings agree with the previous conclusions. Turning to gender differences, Tables A5.18-A5.20 show that the results held for both males and females.

SUMMARY

This chapter addressed several questions.

1) First, are different levels of substance use and delinquency significantly related? If so, does the finding holds for different ethnic groups? The results showed that substance use was significantly related to delinquency in children and youth, regardless of whether they were white, black, or Hispanic. For the youth sample, the relationship between drug use (marijuana and other hard and soft drugs) and delinquency was incremental, in that the more serious the delinquency, the higher the likelihood of drug use.

2) Is the relationship between substance use and delinquency identical for each gender? Significant relationships between substance use and delinquency were observed for boys and girls. Several gender differences, however, were apparent. There was

some evidence that the overlap between substance use and the category "other serious delinquency" was higher for girls than for boys. Although among the female children, this overlap was observed only in one of the two years, the results were more consistent for the older girls. In five of the six comparisons, the conditional probability of girls who engaged in "other serious delinquency" to also use drugs was higher than that for boys. However, for the more serious category of "street crime," the reverse applied: in all of the six comparisons, the probability of boys who engaged in "street crime" to also use drugs was higher than that for girls.

Thus, delinquency in girls at the level of "other serious crime" was more associated with drug use than for boys. Boys, however, once they had advanced to "street crime" were more likely than girls to use drugs.

3) Is the likelihood of substance use given delinquency higher than the reverse? Here the findings are less consistent, but of potential etiological interest. For the children who were on the average about three years younger than the young adolescent group, the results suggest that involvement in substance use increased the likelihood of committing delinquent acts but delinquency also increased the chance of simultaneously being involved in substance use. Thus, for the children, the probability of substance use given delinquency was about the same as the reverse. The only exception were white children for whom the probability of serious delinquency given substance use was

higher than the probability of substance use given serious delinquency. This suggests that for white children alcohol use might have stimulated delinquency, and that delinquency might have stimulated alcohol to a lesser extent.

However, this relationship was not apparent for adolescent youth, for whom the probabilities of serious delinquency given alcohol use were about the same as the probabilities of alcohol use given serious delinquency. Also, for adolescents the relationship between delinquency and drug use varied by race. For blacks the probability of drug use given serious delinquency was higher than the reverse. This suggests that delinquency stimulated drug use in blacks, and that drug use stimulated delinquency to a lesser extent. This trend, although not observed for either white or Hispanic youth, also applied to males. For females, however, there was an opposite trend, i.e., substance use tended to stimulate serious delinquency more so than serious delinquency stimulated drug use.

4) Finally, does a change in substance use affect a change in delinquency over time or is the reverse more common? The results indicated that changes in delinquency are significantly related to changes in substance use. Here the findings were consistently replicated across sites and across data waves. The longitudinal analyses indicated that if substance use increased in seriousness this was accompanied by an increase in delinquency seriousness; in a parallel way, when substance use decreased in seriousness this was accompanied by a decrease in delinquency

seriousness. The reverse was much less common (i.e., that if delinquency seriousness increased, substance use seriousness increased also, or that when delinquency seriousness decreased, that substance use seriousness decreased also). These results applied to children and youth, and indicate that over time substance use appears to stimulate delinquency more than that delinquency tends to stimulate substance use.

POLICY IMPLICATIONS

Traditionally, policy makers have thought of delinquency and substance use as mostly becoming a serious problem when children enter junior high school and high school. Consequently, few programs attempting to reduce delinquency and/or substance use have been initiated at the elementary school level. Intervention programs may have to widen their focus. An emphasis on correcting youngsters' problem behavior without including programs to prevent the experimentation with substances may lead to later use of more advanced drugs which in turn may increase the risk of involvement in more serious delinquency.

The results of these studies demonstrate that targeting delinquency and substance use simultaneously in intervention and prevention programs will more likely enhance the effectiveness of such programs in each problem area than will programs that focus uniquely on either substance use or delinquency. Also, intervention and prevention programs should not be limited to adolescents only but should include children in the elementary

school years as well. For elementary school age children, the focus should be on early alcohol use especially.

Preventive efforts should focus more serious on antisocial girls. Although they are less prevalent than antisocial boys, the risk of delinquent girls developing early alcohol or drug use appears higher than in delinquent boys.

The findings suggest that reducing delinquency by simultaneously bringing substance use under control may be slightly more effective than attempts to reduce substance use by decreasing delinquency, but this will need to be verified in field studies. Combined intervention programs are especially desirable for youngsters involved in marijuana and other drugs since the chance of them being involved in street crimes and/or other serious delinquent acts appears to be high.

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CHAPTER 6**THE RELATIONSHIP BETWEEN SEXUAL ACTIVITY,
PREGNANCY, DELINQUENCY, AND DRUG USE**

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INTRODUCTION

One of the most perplexing social problems facing our nation today is the rise in teenage pregnancy and its precursor, early sexual activity. While many highly developed nations are experiencing decreases in teenage fertility rates, the United States has shown small but consistently higher rates of adolescent pregnancy over the past decade. Currently, the United States has one of the highest teenage pregnancy rates in the industrialized world. The pregnancy rate for females between the ages of 15 and 19 in the United States is 96 pregnancies for every 1000 females. This is over double the rate in England, Wales, France, and Canada and almost triple the rate in Sweden (Jones et al. 1985). For younger adolescents, the discrepancy between the number of girls who get pregnant in the United States compared with the number of girls the same age in other

industrialized countries is even greater.

Historically and legally, there has been a strong connection between early sexual activity and other forms of delinquency. In some states, sexual behavior among consenting adolescents is illegal until the age of eighteen. In other states, such as Colorado, the age at which such behavior becomes legal is sixteen. Thus, researchers often have studied sexual behavior under the rubric of general delinquency.

Previous research has generally focused upon the inter-relationship between different types of deviant behavior during adolescence. This research almost uniformly finds a strong positive correlation between different types of deviant behaviors such as alcohol and drug use and criminal behavior (Elliott, Huizinga & Menard, 1989; Johnston, O'Malley & Eveland, 1978). Another body of research has extended this domain to include the relationship between sexual activity and delinquency (Donovan & Jessor, 1985; Elliott & Morse, 1989; Jessor & Jessor, 1978).

Some of these studies have postulated that these inter-correlations between different types of problem behaviors are due to an underlying syndrome of problem behavior (Jessor & Jessor, 1977; Donovan & Jessor, 1985). The driving force behind this behavior is a desire to engage in "risk taking" behavior. Other researchers (e.g., Mott & Haurin, 1988; Osgood, Johnston, O'Malley, & Bachman, 1988) have concluded that such behaviors are more singular in nature, that is, adolescents, especially young adolescents, who are engaged in one form of deviant behavior are

not necessarily engaged in other forms of deviance. Alternatively it may be that there is not a fixed rule applicable to all adolescents. For some individuals there may be a connection between different types of deviant behavior such that involvement in one form of deviance is accompanied by or leads to involvement in other types of deviance, while for others, such involvement is singular in nature. While a full discussion of the theoretical implications of these two conflicting positions and intermediate positions is beyond the scope of this report, a better understanding of the mechanisms by which these behaviors manifest themselves is important because adopting the former view that delinquency, early sexual activity, and drug use are part of syndrome of problem behavior may have very different policy implications than adopting the view that these behaviors are singular for the majority of adolescents.

The prospective panel data collected from the Denver Youth Survey, the Rochester Youth Development Study, and the Pittsburgh Youth Study are used in this chapter to provide further insight into the nature of these relationships as well as general incidence rates in a high risk sample of adolescents.

METHODS

Respondents in the three studies were asked about their previous, as well as their current, involvement in sexual activity, and the age at which such behavior was initiated. Females in Rochester and Denver (females are not involved in the Pittsburgh study) were asked whether they had ever been pregnant,

while males in these two sites were asked whether or not they had ever impregnated a female. These questions were asked at all three years in the Denver site. In Rochester, females were not asked whether or not they had ever been pregnant until the second year of the study and males were not asked whether or not they had ever impregnated females until the third year of the study. In Pittsburgh, the questions concerning sexual activity were not asked until the second half of the first year. Questions concerning impregnation were not asked in Pittsburgh until the final year of the study and are not available for analysis.

In the following, the demographic characteristics of sexually active adolescents, the rate of pregnancy and impregnation, and temporal order of pregnancy in relation to delinquency and drug use are examined. To facilitate these analyses, typologies of delinquency and drug use are employed. This involved classifying respondents into one of four delinquency types: those who had never been involved in any type of delinquent behavior, those who had been involved in only minor forms of delinquency, those who had been involved in other serious delinquency and those involved in street crimes. A similar typology was created for alcohol and drug use. This typology yielded three types: those who had never used alcohol or drugs, those who had used alcohol only, and those who had used marijuana or other drugs.

Also, to examine the question of temporal order, classification types were constructed. Individuals were

categorized as one of six types: those who were involved in only delinquency/drug use, those who were involved in only sexual activity, those who were involved in neither sexual activity nor delinquency/drug use, those who initiated sexual activity prior to involvement in delinquency/drug use, those who initiated delinquency/drug use prior to sexual activity, and those who initiated sexual activity and delinquency/drug use in the same year. For purposes of these analyses, three types of delinquent behavior were considered: minor delinquency, other serious delinquency, and street delinquency. Two types of drug use were examined: the first type included only alcohol use and the second type marijuana and other drug use. The analyses which investigated the temporal order question were done separately for each delinquency and substance use type in an attempt to understand their unique relationship to sexual behavior.

DEMOGRAPHIC INFORMATION

SEXUAL ACTIVITY

For the first year of the Denver Youth Survey (1987), the respondents were 11, 13, and 15 years of age. In this year, 28 percent of the males in the sample and 22 percent of the females reported having had sexual intercourse with someone of the opposite sex at some time in their lives (ever prevalence). By the next year, when the respondents were a year older, these figures had climbed to 39 percent for males and 28 percent for females. At year 3, when respondents were 13, 15, and 17 years of age, 51 percent of the males and 40 percent of the females

reported having had sexual experience with someone of the opposite sex.

A similar trend but with higher involvement was found in the Rochester Youth Development Study. For the first year of that study (1987), when respondents were between the ages of 11 and 15, 49 percent of the males and 33 percent of the females reported having had sexual intercourse at some time in their lives. One year later, 59 percent of the males and 45 percent of the females had reported having had sexual intercourse. At the final year for which results were available, 70 percent of the males and 58 percent of the females reported that they had been sexually active at some point in their lives.

Results in the Pittsburgh Youth Study parallel those found in Rochester. For the first year of the study when respondents were between 12 and 15, 41 percent of the males had engaged in sexual intercourse at some point in their lives. By the second year, this figure had climbed to 55 percent and by the third to 68 percent (see Table 6.1).

Information was also obtained about the rates of annual prevalence of sexual activity, that is, the number of youths who are sexually active in a given year. These data indicate the same kinds of trends. For any given year, males are more sexually active in that year, than are females. These results hold true at both the Denver and Rochester sites. Males at the Rochester and Pittsburgh sites are substantially more sexually active in any given year than are their counterparts in Denver.

Table 6.1 Percent of Youth Who Have Engaged in
Intercourse at Some Time in Their Lives

	<u>Age of Youth for Year Noted</u>	<u>Males</u>	<u>Females</u>
1988			
Denver	(11, 13, 15)	28	22
Pittsburgh	(12-15)	41	--
Rochester	(11-15)	49	33
1989			
Denver	(12, 14, 16)	39	28
Pittsburgh	(13-16)	55	--
Rochester	(12-16)	59	43
1990			
Denver	(13, 15, 17)	51	40
Pittsburgh	(14-17)	68	--
Rochester	(13-17)	70	58

The Rochester females are also more sexually active than their Denver counterparts, especially in the second and third years. During the third year, when the samples were generally in the 13-17 year old age range, 46% of the males in Denver, 57% of the males in Pittsburgh, and 60% of the males in Rochester were sexually active. In contrast, only 35% of the females in Denver and 50% of the females in Rochester were sexually active (see Table 6.2).

There appear to be substantial differences both in the rates of ever prevalence and annual prevalence of sexual activity between the sites, and these differences may, in fact, represent different patterns of sexual behavior between these geographic and cultural regions.

PREGNANCY

In the Denver study, only three percent of the females had ever been pregnant in the first year of the study, while 11 percent had been pregnant sometime in their lives by the second year of the study. At year 3 of the study, 15 percent of the females had been pregnant. While data on pregnancy was not collected for the first year of the Rochester study, by year 2, 12 percent of the females at the Rochester site had been pregnant at some point in their lives. By the third year, 16 percent of the girls in the Rochester study had been pregnant. In Denver, all of these pregnancies were for girls 13 years or older, while in Rochester all were for girls 14 years or older. Examining the oldest cohort for the Denver site (those who were 15 year 1).

Table 6.2 Percent of Youth Who Have Engaged in Intercourse
in a Given Year

	<u>Age of Youth for Year Noted</u>	<u>Males</u>	<u>Females</u>
1988			
Denver	(11, 13, 15)	23	20
Pittsburgh	(12-15)	32	--
Rochester	(11-15)	45	28
1989			
Denver	(12, 14, 16)	34	25
Pittsburgh	(13-16)	46	--
Rochester	(12-16)	49	38
1990			
Denver	(13, 15, 17)	46	35
Pittsburgh	(14-17)	57	--
Rochester	(13-17)	60	50

of the study), nine percent of the group had been pregnant at least once by the first year of the study, 23 percent had been pregnant at some point in their lives by the second year and 42 percent had been pregnant by the third year of the study. Thus, by age 17, almost one-half of the females in the Denver study had been pregnant at least once in their lives. The pregnancy rates in the Rochester study were similar for the second year of the study with 20 percent of the oldest cohort reporting having ever been pregnant. By the third year, 29 percent of the oldest cohort in Rochester had reported having ever been pregnant. While this oldest cohort in Rochester is younger than the oldest cohort in Denver, it is clear that the higher rate of sexual activity does not necessarily translate into a higher pregnancy rate.

The percentage of males who reported having ever had impregnated a female was low across all three years of the Denver Youth Survey (2 %). However, for the Rochester Youth Development Study, 16 percent of the males from 13-17 years of age reported having impregnated a female by the third year of the study (see Table 6.3). In contrast to the findings for pregnancy, these results, at least in part, may be due to the much higher rates of sexual activity among the males in the Rochester study.

AGE TRENDS

In keeping with other studies, with increasing age, all three studies found a significant increase in the number of respondents who were sexually active in a given year (annual

Table 6.3 Percent of Youth Who Have Impregnated or Who Have Been Pregnant at Some Point in Their Lives

	<u>Age of Youth for Year Noted</u>	<u>Males</u>	<u>Females</u>
1988			
Denver	(11, 13, 15)	2	3
Rochester	(11-15)	--	--
1989			
Denver	(12, 14, 16)	2	11
Rochester	(12-16)	--	12
1990			
Denver	(13, 15, 17)	2	15
Rochester	(13-17)	16	16

prevalence). Estimates ranged from five percent of the 11 year olds to 67 percent of the 17 year olds for the Denver study, 18 percent of the 12 year olds to 85 percent of the 17 year olds for the Rochester study, and nine percent of the 12 year olds to 85 percent of the 17 year olds for the Pittsburgh study (see Table 6.4 for exact figures).

RACIAL DIFFERENCES

Annual prevalence of sexual activity across all cohorts was significantly higher among blacks than among other racial groups (see Table 6.5). As with other findings, this differential rate in sexual activity did not translate into differences in pregnancy rates. There were no significant differences in rates of pregnancy among the females of the different racial groups.

LONGITUDINAL ANALYSES

PATTERNS OF DELINQUENCY, DRUG USE, AND SEXUAL ACTIVITY

To examine the issue of the singularity of delinquent behavior, the percentage of individuals engaged in sexual activity as well as various types of delinquency are given in Table 6.6. Results in this table would suggest that there is reason to question the concept that there is a syndrome of problem behavior. Even though there are substantial site differences in the patterns of involvement in singular, multiple, or non-delinquent acts, it is clear that regardless of the offense, a proportion of youths are involved in delinquency or sexual activity alone. In Denver, 44 percent of the youths fall into this category while in Pittsburgh and Rochester, 27 percent

Table 6.4 Percent of Youth Who Have Engaged in Sexual Intercourse During the Past Year

	Age <u>11</u>	Age <u>12</u>	Age <u>13</u>	Age <u>14</u>	Age <u>15</u>	Age <u>16</u>	Age <u>17</u>
1988							
Denver	5	--	20	--	41	--	--
Pittsburgh	--	9	23	43	69	--	--
Rochester	--	18	28	46	60	--	--
1989							
Denver	--	7	--	32	--	54	--
Pittsburgh	--	--	26	36	66	66	--
Rochester	--	--	19	36	55	81	--
1990							
Denver	--	--	14	--	44	--	67
Pittsburgh	--	--	0	41	46	75	85
Rochester	--	--	0	38	47	67	85

Table 6.5 Percent of Youth Who Had Sexual Intercourse
During the Past Year -- By Ethnic Group

	<u>Age of Youth for Year Noted</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>
1988				
Denver	(11, 13, 15)	15	28	17
Pittsburgh	(12-15)	10	46	--
Rochester	(11-15)	18	44	26
1989				
Denver	(12, 14, 16)	27	40	23
Pittsburgh	(13-16)	23	63	--
Rochester	(12-16)	28	51	33
1990				
Denver	(13, 15, 17)	30	50	34
Pittsburgh	(14-17)	39	70	--
Rochester	(13-17)	34	63	47

Table 6.6 Percent of Youth Involved in Sexual
Activity and Various Types of
Delinquent Acts

	<u>Denver</u>	<u>Pittsburgh</u>	<u>Rochester</u>
No Delinquency/ No Sex	13	7	17
Sex Only	2	2	7
Minor Delinquency Only	12	3	4
Minor Delinquency and Sex	8	3	6
Other Serious Delinquency Only	19	16	11
Other Serious Delinquency and Sex	12	24	19
Street Delinquency Only	11	6	3
Street Delinquency and Sex	22	39	32

and 25 percent, respectively, of the youths are involved in a singular deviant behavior. In Denver, an almost equal number of youths are involved in both sexual activity and some form of delinquency (42%). Sixty-six percent of the youth in Pittsburgh and 57 percent of those in Rochester are involved in multiple problem behavior. Thus, while many youth are involved in both sexual activity and delinquency, a large proportion of the youth are involved in only delinquency.

The overwhelming finding from the cross-classification of sexual activity and pregnancy by delinquency type analyses is that those individuals who are involved in sexual activity or pregnancy are much more likely to be involved in some form of delinquency (see Table 6.7). This result holds for both the Denver and Rochester sites. The results are even more striking for those males who impregnate females. The vast majority of the Denver males who have impregnated are involved in street crimes, the most serious of offenses (89%). While the number of males who impregnate is low for the Denver study (N=16), these striking results are closely replicated in Rochester where 78 percent of the males who impregnate are involved in street crimes.

The rates of drug and alcohol use among those who have become pregnant are very high in both the Denver and Rochester study (83% for both). Even higher rates of drug and alcohol use are found among those males who impregnate females (95% for Denver and 91% for Rochester).

Analyses examining the temporal ordering between the onset

Table 6.7 Percent of Youth Ever Involved in Sexual Activity, Pregnancy, or Impregnation by Type of Delinquency and Type of Substance Use

	<u>Sexual Activity Denver</u>	<u>Sexual Activity Pittsburgh</u>	<u>Sexual Activity Rochester</u>	<u>Pregnancy Denver</u>	<u>Pregnancy Rochester</u>	<u>Impregnate Denver</u>	<u>Impregnate Rochester</u>
Delinquency Type							
Street Offense	49	57	51	31	52	89	78
Other Serious Offense	28	35	29	37	34	5	18
Minor Offense	19	4	9	27	7	6	0
None	5	4	11	5	7	0	4
Substance Use							
Marijuana & Other Drugs	51	53	35	50	59	78	54
Alcohol	29	23	40	33	24	17	37
None	20	24	26	17	17	5	9

of delinquent behaviors and sexual activity provided mixed results across delinquency levels and sites (see Table 6.8). The pattern of results for the Denver Youth Survey and the Pittsburgh Youth Survey indicates that involvement in both minor delinquency and serious delinquency preceded involvement in sexual activity. A different pattern is seen for the Rochester Youth Development Study such that for both minor and serious delinquency, sexual behavior is likely to have preceded delinquency. In the Denver site, initiation in alcohol use preceded initiation into sexual activity while for both Pittsburgh and Rochester the reverse was true. In all three sites, initiation into sexual intercourse precedes involvement in street crimes and marijuana and other drug use (though there was no substantive difference between the initiation rates in Pittsburgh).

DISCUSSION AND IMPLICATIONS

Despite the variation across sites in the rates of sexual activity, pregnancy, and impregnation, the amount of such activity is high. Furthermore, initiation into such activity for a large portion of the population is occurring early. By age 17, reports from the Denver study indicate that 75 percent of the males and 60 percent of the females have engaged in sexual activity. By this same age, almost half of the females have been pregnant. While only a small number of males in Denver reported having impregnated someone, the data from Rochester would indicate that among the oldest youth, a large number of males have been involved in sexual activity leading to pregnancy. The

Table 6.8 Order of Initiation Between Sexual
Activity and Delinquency and
Substance Use

	<u>Denver</u>	<u>Pittsburgh</u>	<u>Rochester</u>
Minor Delinquency 1st	60	56	23
Sex 1st	10	31	42
Order Indeterminate	30	13	35
Other Serious Delinquency 1st	42	72	26
Sex 1st	18	15	42
Order Indeterminate	38	13	22
Street Crimes 1st	16	41	7
Sex 1st	31	44	54
Order Indeterminate	53	16	39
Alcohol Use 1st	35	19	18
Sex 1st	17	65	47
Order Indeterminate	42	16	35
Marijuana & Other Drugs 1st	12	6	6
Sex 1st	31	72	57
Order Indeterminate	57	22	37

focus of the Adolescent Family Life Act (1981) has been to encourage youths to prevent or postpone sexual activity and hence prevent adolescent pregnancy (White & White, 1991). These data would indicate that youths are engaging in sexual behavior in large numbers and that such a program in and of itself may not have the desired results. The disparity between the higher rates of teenage pregnancy in Denver and the lower rates of sexual activity at that site as compared to Rochester may indicate that there are other factors which may impact the teenage fertility rates. Cross-cultural research (Jones et al. 1985) would suggest that programs which provide easy dissemination of birth control information can provide an effective means of preventing teenage pregnancy. That youths in Rochester and Pittsburgh are more likely than those in Denver to ever have experienced sexual intercourse or to have engaged in sexual activity in the past year may have interesting policy implications. There may be regional differences in preferences for sexual activity among youths that transcend race and ethnicity. Pittsburgh and Rochester are both large eastern cities in a region that is densely populated whereas Denver is a western city that is somewhat more isolated. Perhaps insularity or regional culture helps to define preferences for sexual activity. If this is true, it may suggest that strategies tailored to regional preferences may be more successful in dealing with youth's sexual activity and birth control.

The costs associated with the increase in teenage pregnancy

are not insignificant. The children of teenagers are often of low birth weight so the medical costs associated with these births are often higher than average. Teenage mothers often fail to receive adequate prenatal counseling so their children have higher than average rates of physical and mental disabilities. For some of these mothers having children at a young age puts them on a cycle of welfare from which they never escape (Voydanoff & Donnelly, 1990). Society as a whole is forced to bear the burden of these ever increasing costs. Adequate prevention programs which recognize that teenagers do and will continue to engage in sexual activity may help control these costs.

The results from attempts to establish a clear temporal ordering of the relationship between delinquency/drug use and sexual activity would indicate that no rule is invariant. There appear to be significant site differences. In the Denver and Pittsburgh studies, involvement in less serious delinquency precedes first involvement in sexual intercourse. In the Rochester study, the reverse is true. All three sites agree that for those cases in which temporal order can be established, initiation of sexual intercourse precedes involvement in street crimes and in marijuana and other drug use.

While it seems inappropriate to draw many temporal ordering conclusions, we can determine that it is least common for delinquency (or drug use) and sexual intercourse to be initiated in the same time period. This is found in all three sites. This

suggests, perhaps, that there may be different explanatory or causative factors underlying the initiation of these behaviors and prevention programs aimed at reducing the initiation of one may not necessarily prevent initiation of the other. The findings which suggest that much of the deviant behavior is singular in nature also reinforce this notion. Thus, separate strategies may have to be employed which are aimed at the prevention of criminal delinquency than are aimed at the delay of sexual intercourse and the prevention of pregnancy.

Although some may argue that the relationship between sexual activity and other forms of delinquency and drug use is only of academic not practical interest, the finding that the vast majority of those females who have been pregnant are involved in some form of alcohol or other drug use is particularly alarming. These data are not specific enough to determine whether or not this substance use occurred during pregnancy. Yet, the high percent of females who become pregnant who also engage in substance use (83% for Denver) leads one to suspect that such behavior may well be occurring during pregnancy. Further research into this relationship is certainly warranted and is being pursued in the Denver study. However, education programs which are targeted at preventing teenage pregnancy would also do well to underscore the dangers of using alcohol and other drugs during pregnancy. Certainly, there is evidence to suggest that alcohol and other drugs can cause harm to the developing fetus. Hence, their usage during pregnancy is to be avoided whenever

possible.

Teenage sexuality appears to be a phenomenon which is firmly entrenched in our society. Rather than attempting to regulate sexual activity, Chilman (1990) notes that perhaps it should be acknowledged that this behavior is becoming normative for the adolescent years and that a healthy involvement in sexual behavior should be one of the developmental objectives during the adolescent years. If we are to minimize the negative consequences of this behavior, we must recognize that there are many components of healthy adolescent sexual behavior, among them safe sex, self-esteem, and equality between the sexes. Prevention programs which address both the biological and psychological aspects of sexuality may be more effective in curbing the trend toward an earlier involvement in sexual intercourse. However, there is little empirical evidence to support this claim and it may be that educating youths about sexual intercourse and contraceptive use may in fact lead to greater rates of sexual activity and pregnancy. Cross-cultural evidence is mixed. Sweden has a comprehensive, national program of sex education which includes not only information on sexual reproduction but also on contraceptive use. Their rates of sexual activity are much higher than in the United States. Yet, their pregnancy rates are much lower (Jones et al. 1985). The Netherlands also has a national policy of teaching reproduction in the schools but no such policy regarding the teaching of contraception. However, there is much media attention given to

the dissemination of information regarding the use of adequate contraception. While the rates of sexual activity in the Netherlands are comparable to those in the United States, the rate of teenage pregnancy is one seventh that of the United States. Programs which have evaluated Adolescent Family Life Demonstration Projects in the United States would indicate that providing preadolescents with information about the consequences of early sexual activity within a framework of the need to postpone sexual involvement provide some slight decrease in sexual activity and pregnancy (White & White, 1991). Yet, the methodology of these studies is often problematic. Clearly more study is needed in this area before this controversy is resolved.

Given the almost normative nature of involvement in sexual intercourse and the strong messages which adolescents receive from the media about the romantic and exciting aspects of sexual activity (Jones et.al 1985), it may also be important to stress the role of adequate contraception since it may be the only real prevention against unplanned teenage pregnancy. It is estimated that the single year cost of teenage childbearing was over \$20 billion in 1990 (based on 1985 costs adjusted for inflation) (Voydanoff & Donnelly, 1990). At a time of increasing budget constraints, it may well be in our national interests for the federal government to become more involved in family planning education since even delaying these births beyond the adolescent years could save millions of dollars each year (Voydanoff & Donnelly, 1990). Thus, given the enormity of the problem of

teenage pregnancy and its correlate teenage sexual activity, it becomes not only prudent, but fiscally responsible, to pay greater attention to this form of delinquency.

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CHAPTER 7

DEVELOPMENTAL PROGRESSIONS

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Disruptive behavior in children - patterns of oppositional behavior and conduct problems, including delinquency and violence - cause widespread harm, discomfort and harm to others. In most youngsters, these behaviors emerge slowly, sometimes over more than a decade. Caretakers are often perplexed by the seemingly unpredictable nature of the development of the behaviors and often do not know what problem behavior to expect next. Also, clinicians and researchers interested in prevention may be puzzled by the course of disruptive behaviors over time. For them, the prevention of disruptive child behavior requires knowledge of the course of these behaviors over time because preventative actions need to be directed at earlier rather than later stages of deviant development.

Disruptive child behaviors are known to be heterogeneous, and distinctions have been made between overt (or aggressive) and covert (or concealing), mostly delinquent problem behaviors (Achenbach, 1993, this issue; Kazdin, 1992; Loeber & Schmalting, 1985a; Lahey et al., 1992). Youths can be conceptualized as developing within each domain, with some advancing to more

serious overt problems, others advancing to more serious covert problems, a third group advancing in both domains, and still others desisting before reaching more serious levels. This is akin to the concept of developmental lines as conceived by Anna Freud (1965). In order to establish the development of pathology, an entire profile of developmental lines or pathways needs to be examined and compared with normal development for each line of functioning (see also Cicchetti, 1990).

Ages of onset and temporal order of behaviors are some basic elements of pathways (Loeber, 1991). Researchers (Farrington et al., 1990) have debated whether ages of onset of delinquency, like ages of onset of substance use, develop in an orderly and predictable manner (Blumstein, Cohen, Roth, & Visher, 1986). Findings on the development of substance use show that a first stage includes the use of beer or wine; a second stage consists of cigarette smoking or use of liquor; a third stage concerns marijuana use; while a final stage involves the use of hard drugs (Hamburg, Kraemer, & Jahnke, 1975; Kandel, 1978, 1980).

In order to test whether developmental stages exist for disruptive behavior, a developmental sequence must be formulated and its utility tested. A first test is to examine the distribution of disruptive boys at each stage of a pathway; a majority should begin their course of disruptive behavior at the first stage, a smaller number should begin at the intermediate stage and a minority should begin with behaviors typical of the later stage. The existence of a common developmental sequence,

however, does not mean that all individuals will go through the full sequence. Instead, it is likely that a large proportion advances through the early stage in the sequence, a smaller proportion of individuals reaches the intermediate stage, while an even smaller proportion of individuals eventually travels the full sequence. A second test is to examine whether individuals in different single pathways or in different combinations of pathways differ in their rate of delinquency over time.

Some research findings have hinted at developmental sequences in delinquency. For example, Le Blanc and Fréchette (1989) plotted youngsters' self-reported age of onset of delinquent acts in a three-panel longitudinal study. They found that larceny tended to have an earlier age of onset than shoplifting which, in turn, had an earlier age of onset than petty theft, burglary, or motor vehicle theft. Similarly, a re-analysis of Belson's (1975) retrospective interviews with London boys, aged 13 to 16, provided evidence for a developmental sequence in theft, with minor theft occurring at an earlier age than major theft (Loeber, 1988). These retrospective reports, however, leave open the possibility that recall biases may have operated. Also, comparisons between ages of onset for different theft behaviors were based on group data rather than on changes within subjects over time.

There is a scarcity of prospective studies which have addressed developmental sequences in delinquency. Le Blanc, Côté, and Loeber (1991), in their analysis of a follow-up of boys

from Montreal, were able to outline specific behavioral sequences over time, such as minor theft to vandalism, and minor theft to selling and using drugs. These analyses, however, were limited to two points in time. Loeber, Green, Lahey, Christ, and Frick (1992) examined the median ages of onset of symptoms of oppositional behavior and conduct problems, but had to rely on the retrospective reports of caretakers only. Few studies have classified individuals in terms of their development of deviant behavior over time and covered both nondelinquent conduct problems and delinquent acts.

Single vs. Multiple Pathways. Another unresolved issue is whether there is a single pathway representing all different types of disruptive behavior (such as stealing, violence, and truancy) or whether the development of these behaviors can be best captured by multiple pathways or developmental lines for each separate domain of behavior. A substantial body of research, mostly correlational, has indicated that usually different manifestations of disruptive behavior are intercorrelated (Jessor & Jessor, 1977; Donovan, Jessor, & Costa, 1988). These studies, however, did not address to what extent domain specific developmental pathways might have produced temporally ordered patterns of problem behaviors.

A literature review of the developmental studies on disruptive behavior (Loeber, 1988) concluded that, aside from an Exclusive Substance Use Pathway, there was evidence for two pathways of disruptive child behavior. A first pathway, called

the Aggressive/Versatile Pathway, was characterized by youngsters who developed aggressive and concealing or covert conduct problems. Hyperactivity was thought to be most linked to this pathway. A second pathway, labelled the Nonaggressive Antisocial Pathway was largely confined to youth who developed nonaggressive, covert acts only. Both the Aggressive/Versatile and the Nonaggressive Paths appeared linked to the development of substance (ab)use.

Other researchers have recently proposed, mostly on theoretical grounds, a division of disruptive youths based on age of onset of delinquent behavior in childhood or adolescence (Moffitt, 1992; Patterson, 1986; Tolan & Guerra, 1992). Huizinga, Esbensen, and Weiher (1991), using data from the Denver Youth Study, simultaneously classified youngsters on the basis of their own behavior and independent variables. Tremblay (1992) and Pulkkinen and Tremblay (in press), using samples in Montreal and Finland, proposed a classification of children according to personality types with different outcomes over time. One of the difficulties in all these studies is that child behavior, the construct of main concern, may evolve over time (Baumrind, 1989), and the same may apply to independent measures. The strategy used in the present study is to first focus on evolving stages of child behavior in order to identify pathways. In later publications we will examine factors which influence children's positions in one or more pathways.

Basic Dimensions of Disruptive Child Behavior. Concurrent studies of the dimensions of disruptive child behavior are probably relevant for the formulation of temporal pathways toward serious disruptive behaviors. Meta-analyses of parent and teacher ratings of concurrent disruptive child behavior (Loeber & Schmalting, 1985a; Lahey et al., 1992) have showed that one major dimension of disruptive behavior places overt problem behavior on one pole (e.g., temper tantrums, attacks people), and covert problem behavior on the other pole (e.g., theft, setting fires), with disobedience situated in the middle of this dimension.¹ Overt and covert problem behaviors appear to have different correlates (Kazdin, 1992; Loeber & Schmalting, 1985b). Several studies have demonstrated that youngsters can be meaningfully classified according to the overt and covert dimensions of disruptive behavior (Loeber & Schmalting, 1985b; Lahey et al., 1992) with the proviso, however, that some youth engage in both types of behavior (called versatiles) and often display the highest rate of delinquent acts (Loeber & Schmalting, 1985b).

Meta-analyses have not specifically focused on disobedience. Disobedience, defiance, truancy and running away differ from most other disruptive behaviors in that they usually do not inflict the same degree of distress in others. We see these problems as various expressions of conflict with authority, often but not always starting at an early age, and frequently overlapping with

1 In addition, the Lahey et al (1992) study found evidence for another dimension with destructive behaviors on one pole and nondestructive behaviors on the other pole.

overt and covert problem behaviors. This accords with Patterson (1980, 1982), who saw noncompliance as a key element in youth's escalation in either overt or covert problem behaviors.

We, therefore, hypothesize the existence of three basic pathways in the development of disruptive child behavior: (a) Authority Conflict Pathway; (b) Covert Behavior Pathway; and (c) Overt Behavior Pathway. In the latter two pathways the assumption is that less serious disruptive behaviors tend to precede the onset of moderately serious behaviors which, in turn, precede the onset of very serious acts.

The present model should be evaluated against alternative model(s). One comparative strategy proposed here is to suspend the theoretical conceptualization of developmental pathways and instead, work in a 'dust-bowl' empirical tradition by identifying the number of subjects in all possible developmental sequences, and grouping these subjects in homogeneous groups. Because of space limitations, the present paper focuses on the first step of identification of pathways, leaving other issues such as experimentation-persistence in pathways and causation to later publications.

The Present Study. The current study addresses the following questions and attempts to replicate the findings in two large samples of boys:

- 1) What is the developmental sequence of onset of different forms of disruptive behavior.

2) In identifying developmental sequences, how does a theoretically based model compare with an empirically based model? Do the results equally apply to black and white boys?

3) In evaluating pathways, what is the distribution of subjects at each entry point to the pathway, and what proportion do not fit the pathway?

4) What is the comparative utility of multiple over single pathways and what is the relationship between multiple pathways?

5) What proportion of boys in single or multiple pathways had a prior diagnosis of Conduct Disorder?

6) Using official court petitions and self-reports of delinquency as criteria, do boys in multiple compared to single pathways have higher rates of delinquency?

METHODS

The present study reports on six assessments, and is confined to boys in the middle and the oldest samples, because they had more years to develop disruptive behavior than those in the youngest sample. This affords a view of onsets of problem behaviors over a period of thirteen years for the middle sample and over a period of sixteen years for the oldest sample.

MEASURES

Figure 7.1 summarizes the type and timing of measures used in the study. The primary caretaker completed an extended version of the Child Behavior Checklist (MCBC) at phases S

through E (Achenbach & Edelbrock, 1983; Loeber, Stouthamer-Loeber, Van Kammen & Farrington, 1991). At the second phase of data collection (A), primary caretakers were also administered a revised form of the Diagnostic Schedule for Children (DISC) (Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984). The interview assessed lifetime and past six-months DSM-III-R symptom manifestations in a variety of areas including oppositional defiant behavior and conduct problems.

At the beginning of the study, the boys in the middle sample were thought to be too young to respond to the Self-Reported Delinquency instrument used for the older children. Therefore, at the first phase (S), these boys were interviewed using the Self-Reported Antisocial Behavior Scale (SRA) (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1989). Subsequently (in phases A through E), they responded to a revised version of the Self-Reported Delinquency Scale (SRD) (Elliott, Huizinga, & Ageton, 1985), which used a six-month reference period. In addition during phase A, life-time questions, including questions about the age of onset of delinquency were asked from these boys.

Boys in the oldest sample were administered the SRD throughout phases S to E, but life-time questions, including ages of onset of delinquent acts were asked at phase S. For both samples, other questions concerned the frequency of self-reported delinquency over the past six months. Moreover, at each successive 6-month follow-up to phase E, we re-administered the youth version (YSR) of the MCBC.

Figure 7.1: Description of Assessments for Middle and Oldest Samples.

	1987-8	1987-8	1988-9	1988-9	1989-90	1989-90
	Retrospective Report		Prospective Report			
Phase	S	A	B	C	D	E
Instrument	SRD* SRA#	DISC SRD** YSR	SRD MCBC YSR	SRD MCBC YSR	SRD MCBC YSR	SRD MCBC YSR

- * retrospective report on delinquent behavior for oldest sample
 ** retrospective report on delinquent behavior for the middle sample and oldest sample
 # used for screening only, not used for age of onset analyses

Note: DISC = Diagnostic Interview Schedule for Children - parent version; MCBC = Maternal Child Behavior Checklist; SRD = Youth Self-Reported Delinquency Scale; YSR=Youth Self Report.

Thus, for the analyses, retrospective data on the onset of disruptive child behavior was based on the life-time questions from the DISC and the SRD. Prospective data of the onset of problem behaviors was measured using the MCBC, the YSR and the SRD at six month intervals at phases B through E for the middle sample, and phases A through E for the oldest sample. If the onset of a behavior was recorded, the child's age at the time of the interview constituted the age of onset. When possible, information was pooled across mother and child reports, so that a symptom's presence could be determined by a positive report by either of the two informants. MCBC or YSR items with low base rates which were regarded as serious forms of disruptive behavior were considered positively endorsed if either the child or mother reported that they were "somewhat true" or "very true" (e.g., shoplifting, gang fights, fire setting). MCBC or YSR items with high base rates which were regarded as less serious forms of disruptive behavior were considered positively endorsed if either the child or mother reported that they were "very true" (e.g., stubborn, lying, staying out late). This restriction was implemented in order to avoid the inclusion of minor, transitional oppositional behaviors.

For the analyses of age of onset, we generally used information from both informants. If the parent and child reported different ages of onset for a particular behavior, the earliest age of onset was selected. As indicated in Table 7.1 the availability of different informants varied for particular

disruptive behaviors. Prior research indicated that parents compared to children are better informants on childhood oppositional behaviors, such as disobedience and defiance (Loeber, Green, & Lahey, 1990; Loeber, Green, Lahey, & Stouthamer-Loeber, 1989). Therefore, parents were the principal informants about the onset of those behaviors.

The frequency of non-trivial self-reported delinquency was computed over the two-and-half year period by summing the frequency of delinquent acts over five assessments from A to E in each sample (since the SRA for the middle sample, administered at assessment S, did not include a frequency estimate). Status offenses (e.g., truancy, running away from home) and less serious offenses (e.g., such as selling worthless goods, theft below \$5, begging) were excluded from the frequency score.

A DSM-III-R diagnosis of Conduct Disorder (CD) was established using two types of information: the DISC-interview with the mother, administered at phase A, and the youth's self-reported CD-symptoms as measured by the SRD (Russo, Loeber, & Keenan, 1992).

Records of the juvenile court were coded according to a prescribed format (Maguin, 1992), resulting in a frequency of petitions lodged before the court because of a juvenile delinquency charge. If a boy during the study had moved away from the area under jurisdiction of the juvenile court of Pittsburgh, this boy was deleted from further analyses. Multiple charges for a single petition were counted as a single petition,

Table 7.1: Items used to generate 10 sets of behaviors.

Steps	Component Behaviors	Instrument Used	
		Retrospective	Prospective
AUTHORITY CONFLICT			
Stubbornness	Stubborn	DISC	MCBC, YSR
Defiance	Doing things own way	DISC	MCBC
	Refusing to do things	DISC	MCBC
	Disobedient	DISC	MCBC
Authority	Staying out late	DISC	MCBC, YSR
Avoidance	Truant	DISC	MCBC, YSR, SRD
	Running away	DISC	MCBC, YSR, SRD
COVERT BEHAVIOR			
Minor Covert Behavior	Lying	DISC	MCBC, YSR
	Shoplifting	SRD	MCBC, SRD
Property Damage	Setting fires	SRD	MCBC, SRD
	Damaging property	SRD	SRD
Moderately Serious Delinquency	Joyriding	SRD	SRD, MCBC
	Pickpocketing	SRD	SRD
	Stealing from car	SRD	SRD
	Fencing	SRD	SRD
	Illegal checks	SRD	SRD
	Illegal credit cards	SRD	SRD
Serious Delinquency	Stealing a car	SRD	SRD
	Selling drugs	SRD	SRD, MCBC
	Breaking and Entering	SRD	SRD
OVERT BEHAVIOR			
Aggression	Annoying others	DISC	MCBC
	Bullying	DISC	MCBC
Fighting	Physical fighting	DISC	MCBC, YSR
	Gang fighting	SRD	SRD, MCBC
Violence	Attacking someone	SRD	SRD
	Strongarming	SRD	SRD
	Forcing sex	SRD	SRD

Note: DISC = Diagnostic Interview Schedule for Children - parent version; MCBC = Maternal Child Behavior Checklist; YSR = Youth Self Report; SRD = Youth Self-Reported Delinquency Scale.

and a hierarchical rule was applied so that the most serious charge of the multiple charges was indicated. In the present analyses, only court petitions for offenses occurring prior to assessment E were included. Violent offenses were defined as aggravated assault, rape, and robbery (thus excluding minor assault).

The total number of life-time court petitions for delinquency in general or for violence up to phase E (up to about age 13 for the middle sample and age 16 for the oldest sample) were used.

ANALYSES

Two analytic steps are first distinguished: the detection of a developmental sequence, and the identification of individuals who travel a part or the full developmental sequence (called pathways) (Loeber & Le Blanc, 1990). Thus, analyses initially focus on the relation between variables (the developmental sequences) and then on within-subject changes over time (the developmental pathways).

DEVELOPMENTAL SEQUENCE. A wide range of disruptive behaviors of varying degrees of seriousness were included in the analyses. Because of skew and right-hand censoring, we preferred median rather than average ages of onset as an initial guide toward the temporal ordering of behaviors. We hypothesized that the ordering of behaviors reflected the most common pathway, since a

median value meant that 50% of the subjects experienced an onset of a problem behavior. Sign tests were computed between each pair of behaviors to establish whether the differences in the median ages of onset were statistically significant, thus establishing the development order of the behaviors. In a minority of instances, the onset of pairs of behaviors was reported to have occurred within the same year.² For analyses, however, such ties were included since they did not contradict developmental sequences. Subjects with missing data were included if they had reached the highest step in a pathway prior to the missing data occurring.

PATHWAYS. The identification of a developmental sequence, however, does not reveal how many subjects fit that sequence, or to what extent there are alternative pathways. Therefore, the next step was to determine how many individuals actually displayed the succession of behaviors as shown in the developmental sequence. A prerequisite for this was that individuals not only displayed a given behavior, but experienced the onset of that behavior after the onset of another behavior. The first test was to see how many subjects followed the developmental sequences identified earlier (for example, A -> B -> C), and what proportion of subjects experienced only the earliest stages in the sequence (i.e., only A, or A -> B). If two adjacent behaviors occurred within the same year, the sequence of onset was considered correct.

² Information about ties is available from the first author.

Another task was to determine the extent that a pathway has single or multiple entry points for individuals. In other words, do most individuals enter the sequence at A, or do a substantial proportion enter the sequence at B or C? A more cogent case for a pathway can be made when individuals enter a pathway at its earlier rather than at later points.

A next task was to determine how comprehensive the formulated pathway was. The intent was to examine the proportion of individuals who do and who do not follow the pathway. If the latter group is small, one may ignore it and set it aside (except when the small group is associated with particularly virulent forms of pathology). It is possible, however, that a more substantial proportion of individuals does not fit a single pathway. In that case, alternative pathways may be formulated.

RELIABILITY OF RETROSPECTIVE REPORTS. The validity of retrospective reports has been challenged, because individuals may not accurately recall whether behaviors have occurred or when they first took place (Radke-Yarrow, Campbell, & Burton, 1970). The same authors, however, have also showed 'consistent' reliabilities for mothers' report of the child's age of first words, and age of first walking (pp. 26, 36), suggesting that some forms of recall are less affected than other forms. Moreover, Green, Loeber, and Lahey (1991) assessed the one-year test-retest reliability of mothers' retrospective recall of the

onset of their children's attention and hyperactive behaviors in a sample of clinic-referred boys. The results showed moderately high agreement, particularly for school-related problem behaviors. Studies on developmental sequences in substance use, albeit with adolescents or adults as informants, have produced identical results, irrespective of whether data were collected retrospectively or prospectively (Kandel, 1978; Kandel & Faust, 1975). Thus, there is some limited evidence of the validity of retrospective reports by mothers and youth regarding the age of onset of problem behaviors.

In the present study, comparisons could be made between caretakers' and youths' reported age of onset of some behaviors. For example, the median age of onset of truancy, based on retrospective and prospective reports by boys in the oldest sample was 13, which was very similar to that reported by their parent (13.5). For prospectively collected information (based on phases B to E), boys and their parents also showed a high degree of agreement. For example, for staying out late, the median ages of onset reported by boys from the middle and oldest sample were 11.5 and 15, respectively, while the figure based on the caretakers' reports were 12 and 15. With regard to setting fires, boys from the oldest and the middle samples and their caretakers reported median ages of onset of setting fires of 11 and 14, respectively. Thus, the boys' and caretakers' reports confirmed each other and buttress our confidence in the validity of their recall of the age of onset of problem behaviors.

RESULTS

DATA REDUCTION

An initial step was to reduce the number of possible temporal permutations so that meaningful analyses could be undertaken. This was accomplished by determining which behaviors were conceptually similar and tended to have similar ages of onset and, therefore, could be subsumed under one category of behavior. For example, lying and shoplifting were grouped together and called minor covert behavior because they usually concern minor concealing acts, and their median ages of onset in the oldest sample were both at age 11. Following this strategy, several other behaviors were grouped together. These are listed in Table 7.1, and resulted in 26 behaviors being subsumed into 10 categories: stubbornness, defiance, authority avoidance, minor covert behavior, property damage, moderate to serious delinquency, aggression, fighting and violence. A few behaviors could not be grouped with other behaviors and were deleted from subsequent analyses.³

Table 7.2 shows the prevalence of the categories of behaviors, distinguished by race. The number of significant differences was higher in the middle than in the oldest sample (five vs. three). The prevalence rates of the less serious behaviors were almost all similar for each ethnic group in each of the two samples, but for serious delinquency, fighting, and violence, rates were significantly higher for blacks than for whites in both samples.

³ "Losing Temper" and "trying to get even."

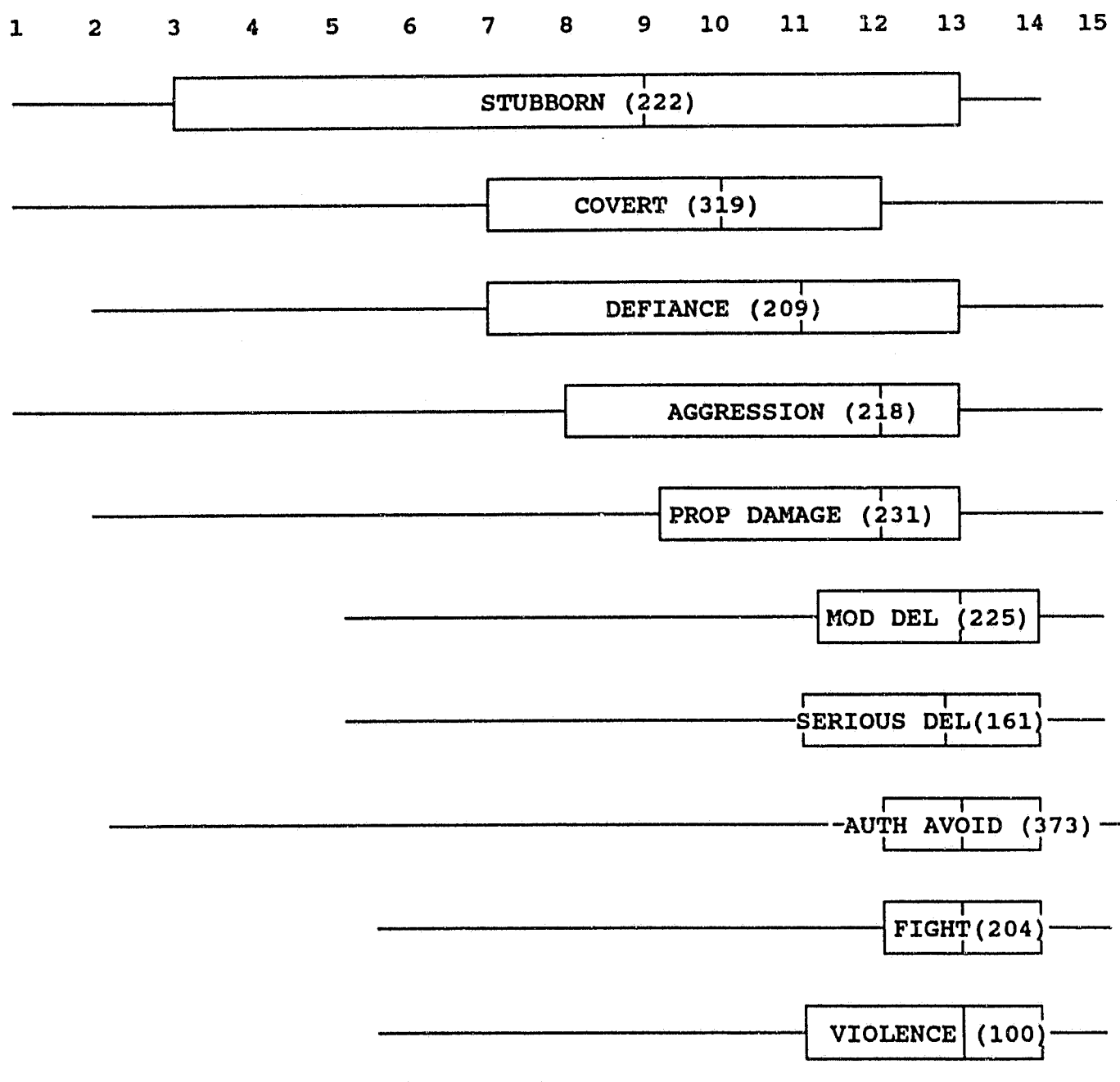
Table 7.2: Base Rates for Categories of Behaviors for All Subjects.

	Middle				Oldest			
	Black (N=283)		White (N=224)		Black (N=291)		White (N=215)	
	N	%	N	%	N	%	N	%
Stubborn ^x	91	(32.2)	86	(38.4)	79	(27.1)	63	(29.3)
Defiance ^x	90	(31.8)	82	(36.6)	50	(17.2)	44	(20.5)
Authority Avoidance ^x	79	(27.9)	73	(32.6)	25	(8.6)	30	(14.0)
Covert	157	(55.5) ^{**}	95	(42.4)	191	(65.6)	128	(59.5)
Property Damage	113	(39.9)	87	(38.8)	132	(45.4)	99	(46.0)
Moderate Delinquency	76	(26.9) ^{**}	36	(16.1)	140	(48.1)	85	(39.5)
Serious Delinquency	50	(17.7) ^{***}	16	(7.1)	113	(38.8) ^{***}	44	(22.3)
Aggression	113	(39.9)	98	(43.8)	116	(29.9)	102	(47.4)
Fighting	133	(47.0) ^{***}	68	(30.4)	132	(45.4) ^{**}	72	(33.5)
Violence	46	(16.3) ^{**}	18	(8.0)	72	(24.7) ^{**}	28	(13.0)

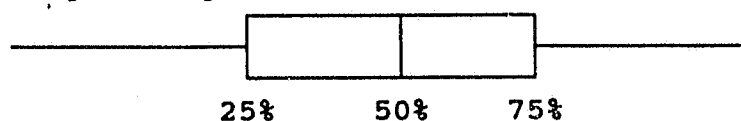
Note: χ^2 significant at * $p < .05$; ** $p < .01$; *** $p < .001$.

^x before age 12

Figure 7.2: Age of Onset Reported at Phases 8 through E - Oldest Sample (N=506).



Range of Age of Onset:



N is reported in parentheses.

Developmental sequences. The next step was to establish for each of the samples the sequence of the ages of onset of the ten categories of disruptive child behaviors. Figure 7.2 shows the box-and-whisker plots for the oldest sample, indicating the range, median, and 25th and 75th percentiles of the distribution of onset for each of the behaviors. It shows the gradual unfolding of problem behaviors, starting with stubborn behavior, followed by minor covert behavior, defiance, aggression and property damage, in that order, while moderate and serious delinquency, authority avoidance, fighting, and violence all shared a median age of onset at age 13.

The sequence of the ages of onset of disruptive behaviors for the middle sample was very similar to that of the oldest sample, even though the rates of the disruptive behavior were much lower in the middle sample. It should, however, be taken into account that in each sample the distribution of the ages of onset was artificially curtailed (i.e., right-hand censored); boys in the oldest sample averaged 16 years of age at wave E, and boys in the middle sample averaged 13 years of age, and thus had not yet gone through the full risk period. Boys in the middle sample had fewer years than those in the oldest sample to experience the age of onset of problem behaviors; therefore, the median ages of onset of specific behaviors were lower than those for the oldest sample. Additionally, because of the age differences, fewer boys in the middle sample compared to those in the oldest sample had experienced the onset of the more serious behaviors (e.g., car theft or rape).

An important validation of the results is whether the developmental sequence equally applied to black and white boys, and across the two samples. The rank order correlations of the median ages of onset (ρ) were .91 and .92, respectively, indicating a substantial agreement between the ages of onset of problem behaviors for black and white boys, and for the middle and the oldest samples.

Pathways. A developmental sequence or ordering of behaviors does not imply that all boys with problem behavior go through the sequence in the same way. For that reason, it is important to determine how many individuals follow a particular pathway and how many follow alternative pathways. To address this, we initially followed a strictly empirical non-theoretical approach, which we later modified to a more theoretically based approach.

Empirical atheoretical approach. The developmental sequence identified through the ordering of ages of onset of problem behaviors allowed us to examine how many subjects fit that sequence. This fitting required that for all manifest behaviors the age of onset indicated the same temporal ordering according to the developmental sequence in Figure 7.2. Since the results of these analyses were ultimately less satisfactory, we will summarize them only. We found a group of subjects who fitted the main developmental sequence, but also a large remainder group who did not fit. For the remainder group we then repeated the age of

onset analysis, with the idea of extracting a second developmental sequence, which would fit most of the remaining subjects. The second developmental sequence, however, only differed in a minor way from the main developmental sequence. We managed to fit more subjects according to the second sequence, but many subjects did not fit either the main or the secondary pathway. Repetition of the procedure for a third time did not dramatically improve the solution of extracting a few discrete pathways which covered most of the subjects in the samples. Moreover, the extracted pathways contained a heterogeneity of problem behaviors which lacked conceptual clarity and which were difficult to communicate. In a closer look at the data, however, we found that the lack of fit was due to the different temporal orderings of overt and covert problem behaviors, which in aggregate were not always compatible. This then led us to consider the identification of developmental pathways according to known clusters of conduct problems.

Theoretical approach. Going back to the earlier work on overt and covert behaviors, we decided to examine the proportion of subjects who fit an escalation in the seriousness of these behaviors (Lahey et al., 1992; Loeber, 1988; Loeber & Schmalting, 1985a, 1985b). In addition, we decided to examine a developmental line in authority problems.

Three types of basic pathways were formulated on the basis of the developmental sequences (Figure 7.2), are shown in Figure 7.3: the Authority Conflict Pathway, the Covert Pathway, and the Overt Pathway.

Authority Conflict Pathway. A first step was to plot the cumulative age of onset distribution for each step in the Authority Conflict Pathway (component behaviors indicated in parentheses), which starts with stubborn behavior, and has defiance (doing things own way, refusing to do things, disobedience) and authority avoidance (staying out late, truancy, running away) as second and third steps, respectively. Figure 7.4 shows the cumulative onset curves for behaviors in this pathway for the oldest sample. The curve for the ages of onset for stubborn behavior, defiant behavior, and authority conflict are parallel and in the anticipated order, but by age 12-13 the curve for the onset of authority avoidance crosses over the two other curves (largely because of an acceleration in the onset of truancy). This indicates that the temporal order between the behaviors was reversed after that age. A similar reversal was observed for the middle sample. These data demonstrated that behaviors such as truancy and staying out late become more normative in adolescence. For that reason, analyses on the Authority Avoidance Pathway were limited to data collected prior to age 12.

Figure 7.3: Overview of Three Developmental Pathways

Escalation in Authority Conflict

Stubborn Behavior \Longrightarrow Defiance* \Longrightarrow Authority Avoidance*

Escalation in Covert Behavior

Minor Covert Behavior* \Longrightarrow Property Damage* \Longrightarrow Moderate/Serious Delinquency*

Escalation in Overt Behavior

Aggression* \Longrightarrow Fighting* \Longrightarrow Violence*

Time \Longrightarrow

* For component behaviors See Table 7.2

Figure 7.4: Cumulative Onset of Behaviors in the Authority Conflict Pathway
(Oldest Sample)

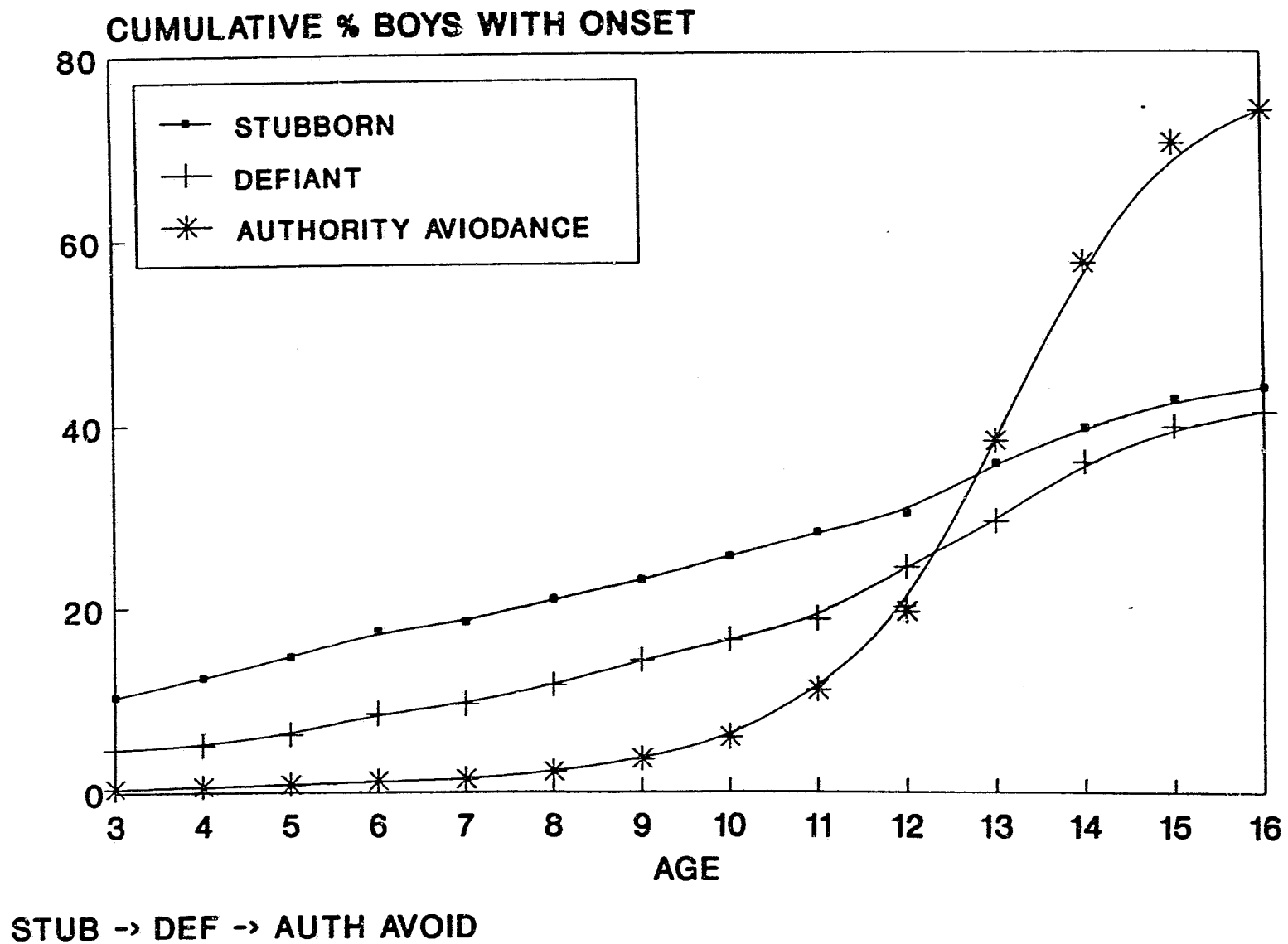


Table 7.3 shows the fit for the Authority Conflict Pathway, separately for boys in the middle and the oldest samples up to age 12. In the middle sample, 149 (31.2%) boys did not show any form of authority conflict. Of the remaining boys, 135 or a little less than half (48.4%) showed an onset starting with the first step in the sequence. Of this group 31 (11.0%) showed the full sequence, another 37 (13.2%) boys showed the first two steps in the sequence, and 45 (16.0%) boys experienced the onset of stubborn behavior only. Twenty-three boys (8.2%) started with the first step, skipped the second step and proceeded to authority avoidance.

How many boys started the sequence at the second or the third step? Table 7.3 shows that 22.1% of those with some form of authority conflict started at the second step, and 16.4% at the third step. Finally, 13.2% of the boys with at least one form of authority conflict did not fit the sequence (e.g., some experienced the onset of authority avoidance prior to defiance).

The results for the boys in the oldest sample, with some variations, followed the pattern shown for the boys in the middle sample (note, however, that the N's are smaller: since boys or caretakers reported also onsets after age 11, and thus were not included in the pathway). Most of those with an onset prior to age 12 followed the sequence starting with the first step of stubborn behavior (64.0%), less than a quarter started at the second step (18.0%), and even fewer started at the last step (4.5%). The percentage which did not fit the sequence was small (8.0%).

Table 7.3: Authority conflict pathway for boys with onsets before 12 years

	Middle Sample						Oldest Sample					
	TOTAL (N=478)		Black (N=266)		White (N=211)		TOTAL (N=506)		Black (N=291)		White (N=215)	
	N	%	N	%	N	%	N	%	N	%	N	%
<u>Sequences starting with Stubborn</u>												
Stubb -> Defiant -> Avoidance	31	(11.0)	17	(11.3)	14	(10.7)	13	(6.5)	6	(5.5)	7	(7.6)
Stubb -> Defiant	37	(13.2)	20	(13.3)	17	(13.0)	30	(15.0)	20	(18.5)	10	(10.9)
Stubb	45	(16.0)	25	(16.6)	19	(14.5)	76	(38.0)	43	(39.8)	33	(35.9)
Stubb -----> Avoidance	23	(8.2)	7	(4.7)	16	(12.2)	9	(4.5)	5	(4.6)	4	(4.3)
	135	(48.4)	69	(46.0)	65	(49.6)	128	(64.0)	74	(68.1)	54	(58.7)
<u>Sequences starting with Defiant</u>												
Defiant -> Avoidance	21	(7.5)	10	(6.7)	11	(8.4)	7	(3.5)	2	(1.9)	5	(5.4)
Defiant	42	(14.9)	22	(14.7)	20	(15.3)	29	(14.5)	17	(15.7)	12	(13.0)
	63	(22.1)	32	(21.4)	31	(23.7)	24	(18.0)	19	(17.6)	17	(18.5)
<u>Sequences starting with Avoidance</u>												
Avoidance	46	(16.4)	30	(20.0)	16	(12.2)	9	(4.5)	9	(8.3)	11	(12.0)
<u>Not fitting Sequences</u>	37	(13.2)	19	(12.7)	18	(13.7)	16	(8.0)	6	(5.5)	10	(10.9)
<u>No Authority Conflict of Any Type</u>												
Not Any Authority Conflict	149	----	90	----	59	----	80	----	45	---	35	----
Onset after age 11	47		26		21		226		138		88	

Note: Percentages are calculated over those who have one or more forms of authority conflict behavior; N=281 for middle sample: N=150 for blacks, N=131 for whites; N=200 for oldest sample: N=108 for blacks, N=92 for whites.

One subject in the middle sample refused to be identified by race therefore the number of african americans and whites does not equal the total number of subjects for the middle sample.

Were there any major ethnic differences in boys' penetration of the Authority Conflict Pathway? A chi-square analysis for the oldest and middle samples contrasting black and white boys for the nine possible sequences did not reach statistical significance ($\chi^2(8) = 9.70$, $p = .29$, and $\chi^2(8) = 8.73$, $p = .36$, respectively), indicating that the pathway applied equally to each ethnic group in each of the two samples. Table 7.3 shows that the distribution of entry points into the pathway and the percent nonfitters was similar for black and white boys.

Covert Pathway. The next hypothesized pathway concerns an escalation in covert problem behaviors. Judging from the developmental sequences reported above, the hypothesized pathway has minor covert behavior as a first step (lying, shoplifting), property damage (setting fires, damaging property) as a second step, and moderate to very serious forms of delinquency as a third step (joyriding, pickpocketing, stealing from car, fencing, illegal checks, illegal credit cards, stealing a car, selling drugs, breaking and entering). Table 7.4 shows that 155 (33.5%) and 104 (22.8%) boys in the middle and the oldest samples, respectively, did not experience an onset in any of the covert behaviors. Of those who did, 16.9% in the middle sample, and 31.3% in the oldest sample did not fit any part of the hypothesized sequence. Most boys entered the sequence at the first step of minor covert behavior (60.4% and 56.5% in the respective samples). Far fewer in the middle sample started at the second step (19.8%) and even fewer in the oldest sample

Table 7.4: Covert Pathway

	Middle Sample						Oldest Sample					
	TOTAL		Black		White		TOTAL		Black		White	
	(N=463)		(N=258)		(N=204)		(N=456)		(N=266)		(N=190)	
	N	%	N	%	N	%	N	%	N	%	N	%
<u>Sequences starting with Minor Covert</u>												
Covert -> Prop Damage -> Mod/Ser Del	33	(10.7)	23	(12.6)	10	(8.1)	71	(20.2)	42	(19.9)	29	(20.6)
Covert -> Prop Damage	44	(14.3)	23	(12.6)	21	(16.9)	27	(7.7)	14	(6.6)	13	(9.2)
Covert	82	(26.6)	45	(24.6)	36	(29.0)	48	(13.6)	26	(12.3)	22	(15.6)
Covert -----> Mod/Ser Del	27	(8.8)	22	(12.0)	5	(4.0)	53	(15.1)	39	(18.5)	14	(9.9)
	186 (60.4)		113(61.7)		72 (58.1)		199 (56.5)		121 (57.3)		78 (55.3)	
<u>Sequences starting with Property Damage</u>												
Prop Damage -> Mod/Ser Del	9	(2.9)	5	(2.7)	4	(3.2)	8	(2.3)	4	(1.9)	4	(2.8)
Prop Damage	52	(16.9)	26	(14.2)	26	(21.0)	17	(4.8)	9	(4.3)	8	(5.7)
	61 (19.8)		31 (16.9)		30 (24.2)		25 (7.1)		13 (6.2)		12 (8.5)	
<u>Sequences starting with Mod/Ser Delinquency</u>												
Mod/Ser Del	9	(2.9)	6	(3.3)	3	(2.4)	18	(5.1)	11	(5.2)	7	(5.0)
<u>Not Fitting Sequences</u>	52	(16.9)	33	(18.0)	19	(15.3)	110	(31.3)	66	(31.3)	44	(31.2)
<u>Not Any Covert Behavior</u>	155	----	75	----	80	----	104	----	55	----	49	----

Note: Percentages are calculated over those who have one or more forms of covert behavior; N=308 for middle sample: N=183 for blacks, N=124 for whites; N=352 for oldest sample: N=211 for blacks, N=141 for whites.

Percentages may not add up to 100% due to rounding.

One subject in the middle sample refused to be identified by race therefore the number of african americans and caucasians does not equal the total number of subjects for the middle sample.

(7.1%). The least common entry point was at the third step in the pathway (2.9% and 5.1%). Thus, the Covert Behavior Pathway is characterized by most boys entering the pathway at the first step, with a low percentage entering it later, especially in the last step.

A final test for the Covert Pathway was to ascertain whether there were any ethnic differences. A chi-square analysis across the two samples contrasting black and white boys showed that there was only a statistically significant difference for the middle sample ($X^2(8) = 15.9$, $p = .04$, and $X^2(8) = 7.79$, $p = .45$, respectively). The results indicated that, for the middle sample, among the boys who displayed the sequence starting with minor covert behavior, skipping property damage, and then proceeding to moderate to serious delinquency, more were blacks than whites, but this did not reach statistical significance ($X^2(8) = .5$, $p = .45$).

Overt Pathway. The last hypothesized pathway consists of an escalation in aggressive acts. The developmental sequences previously discussed provided the basis for the model to be tested: aggression (annoying others, bullying) as a first step, physical fighting (fighting, gangfighting) as a next step, and violence (attacking someone, strongarming, forced sex) as a third step. This sequence was clearest in the oldest sample, because the median age of onset for fighting and violence was the same in the middle sample, which might have resulted from right-hand censoring.

Table 7.5 shows the results for this pathway: 177 (38.2%) and 152 (34.9%) boys in the middle and the oldest samples, respectively, did not display an onset of any of the aggressive behaviors in the pathway. Of the remaining boys, 10.5% and 19.1% in the respective samples did not fit the postulated pathway. More than half (58.7%) of the middle sample experienced an onset at the first step of the sequence, starting with aggression. Very few boys started the sequence and escalated to violence without the intermediate step of fighting. Table 7.5 also shows that 26.9% of the middle sample entered the sequence at the second step of fighting, but only 3.8% of the boys in the middle sample entered the sequence at its last step of violence. Thus, entry into the overt pathway became less likely at later stages of the pathway. These results were basically replicated for the oldest sample.

Finally, there were statistically significant ethnic differences in the Overt Pathway for both samples ($X^2(8) = 19.97$, $p = .010$, and $X^2(8) = 27.69$, $p = .001$). For the boys in the oldest sample who had gone through the full pathway, 20.0% were white compared with 80.0% who were black ($X^2(1) = 5.06$, $p = .024$). Also, Table 7.5 shows that in both samples, more white than black boys started the Overt Pathway at its first step, while more black than white boys started into the pathway at the second step ($X^2(1) = 4.99$, $p = .026$, and $X^2(1) = 8.59$, $p = .003$, middle and oldest samples respectively).

Table 7.5: Overt Pathway

	Middle Sample				Oldest Sample				(N=190)	
	TOTAL Black (N=463)		White (N=258)		TOTAL (N=204)		Black (N=456)		White (N=266)	
	N	%	N	%	N	%	N	%	N	%
<u>Sequences starting with Aggression</u>										
Aggression -> Fighting -> Violence	20	(7.0)	13	(7.7)	7	(6.0)	15	(5.3)	12	(7.0)
Aggression -> Fighting	63	(22.0)	40	(23.7)	23	(19.8)	48	(17.0)	23	(13.5)
Aggression	80	(28.0)	33	(19.6)	47	(40.5)	73	(25.8)	32	(18.7)
Aggression -----> Violence	5	(1.7)	4	(2.4)	1	(0.9)	9	(3.2)	3	(1.8)
	168	(58.7)	90	(53.3)	78	(67.2)	145	(51.2)	70	(40.9)
<u>Sequences starting with Fighting</u>										
Fighting -> Violence	12	(4.2)	8	(4.7)	4	(3.4)	24	(8.5)	18	(10.5)
Fighting	65	(22.7)	45	(26.6)	19	(16.4)	47	(16.6)	32	(18.7)
	77	(26.9)	53	(31.4)	23	(19.8)	71	(25.1)	50	(29.2)
<u>Sequence starting with Violence</u>										
Violence	11	(3.8)	8	(4.7)	3	(2.6)	13	(4.6)	11	(6.4)
<u>Not Fitting Sequences</u>	30	(10.5)	18	(10.7)	12	(10.3)	54	(19.1)	40	(23.4)
<u>Not Any Aggression</u>	177	----	89	----	88	----	152	----	86	----

Note: Percentages are calculated over those who have one or more forms of overt behavior; N=286 for middle sample: N=169 for black, N=116 for whites; N=283 for oldest sample: N=171 for blacks, N=112 for whites.

Percentages may not add up to 100% due to rounding.

One subject in the middle sample refused to be identified by race therefore the number of african americans and whites does not equal the total number of subjects for the middle sample.

Boys in Single or Multiple Disruptive Pathways. To what extent were boys in a single pathway only, and to what extent were others advanced on more than one pathway? For these analyses, we focused on those youth who had penetrated at least unto the second step of more than one pathway (thus omitting those boys who displayed a first step only). Most of the boys with an advanced onset in one pathway also had an onset in another pathway. For instance, for the combined middle and oldest samples, 74.4% of those in the Covert Pathway had experienced an onset of one of the behaviors in the Overt Pathway (the reverse was 80.2%). And, 77.1% and 83.8% of those in the Authority Conflict Pathway also had experienced an onset of one or more behaviors in either the Covert or Overt Pathways respectively (the reverse likelihoods were slightly lower: 68.5% and 73.1%).

Stated differently, 34.4% of the boys who had advanced into the Covert Pathway were specialists in the sense that they were not seriously aggressive; but close to half of the boys in the Covert Pathway also displayed some form of overt behavior and/or authority conflict. Less than 10% of those who had advanced into the Overt Pathway were specialists in the sense that they did not display covert behaviors; but, most of those in the Overt Pathway also displayed some form of covert behavior and/or authority conflict.

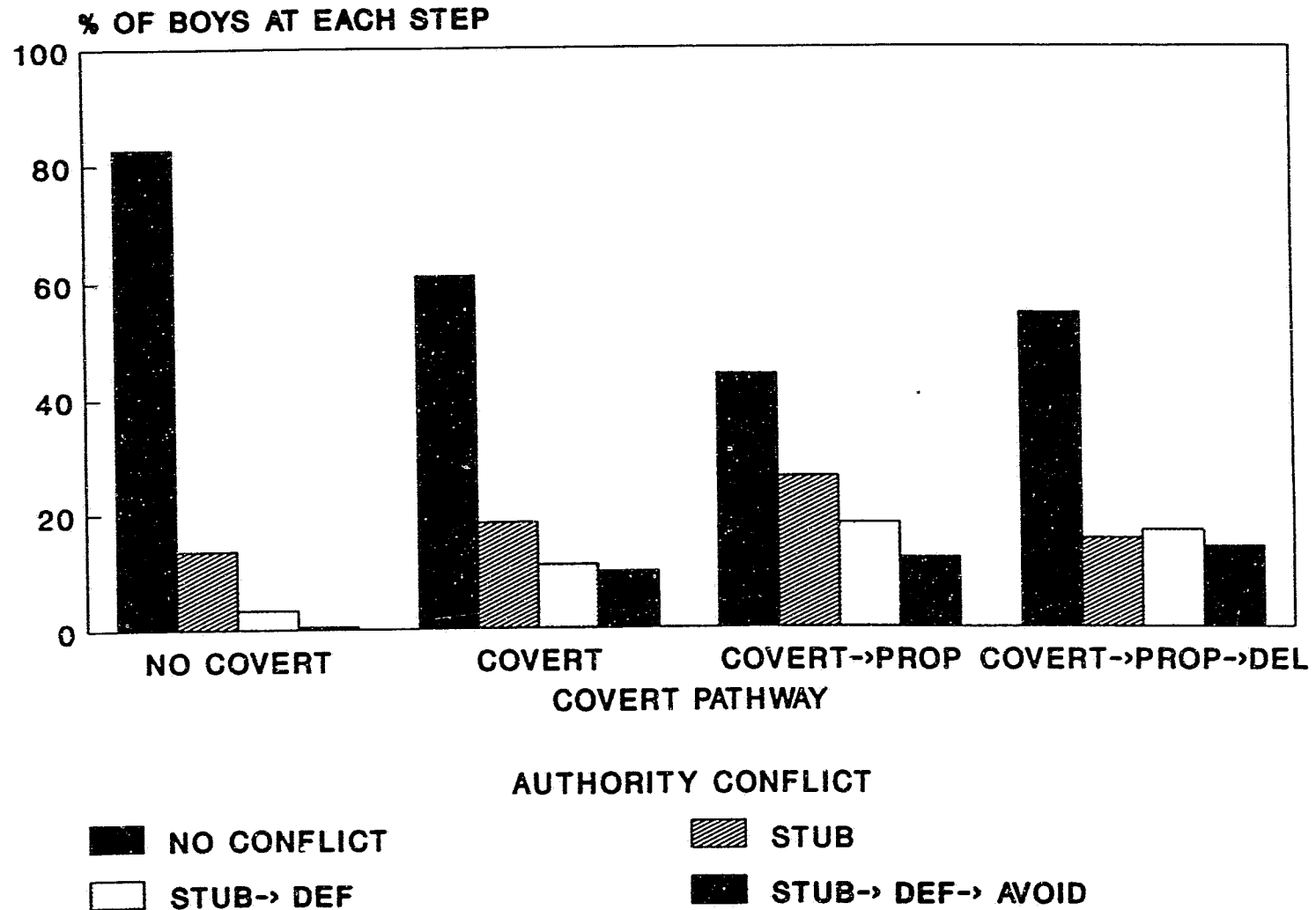
Escalation in a Pathway as a Function of Escalation in Another Pathway. The degree of exclusivity and overlap between pathways does not reveal the extent to which boys' escalation in

one pathway is associated with escalation in another pathway. Also, we cannot assume that the association is symmetrical. For example, given what is known from past longitudinal studies, it is more likely that the presence of aggression forebodes escalation in covert acts than it is that the presence of covert behaviors forebodes escalation in overt acts (Loeber, 1988).

For the reasons mentioned earlier, we restricted the analyses to those boys who best fit the pathways, and then compared the results for the full sample, including nonfitters. For reasons of space, the two samples were merged in the next analyses.

Authority Conflict and Covert Pathways. There was a significant relationship between the Authority Conflict and the Covert Pathways ($X^2(9) = 58.60, p < .0001; N = 418$). Figure 7.5 summarizes the results, and indicates that the effect main rests on a decreasing percent of boys displaying no authority conflict, the further these boys had penetrated into the Covert Pathway. Once boys had entered into the Authority Conflict Pathway, their penetration into that pathway was not clearly associated with penetration into the Covert Pathway. For instance, for those who had advanced to serious delinquency in the Covert Pathway, less than 20% had reached one of either of the three steps in the Authority Conflict Pathway. Thus, the majority of boys at each stage of the Covert Pathway had no Authority Conflict symptoms.

Figure 7.5: Percentage of Boys Penetrating the Authority Conflict Pathway at Each Stage of the Covert Pathway (Middle and Oldest Samples).



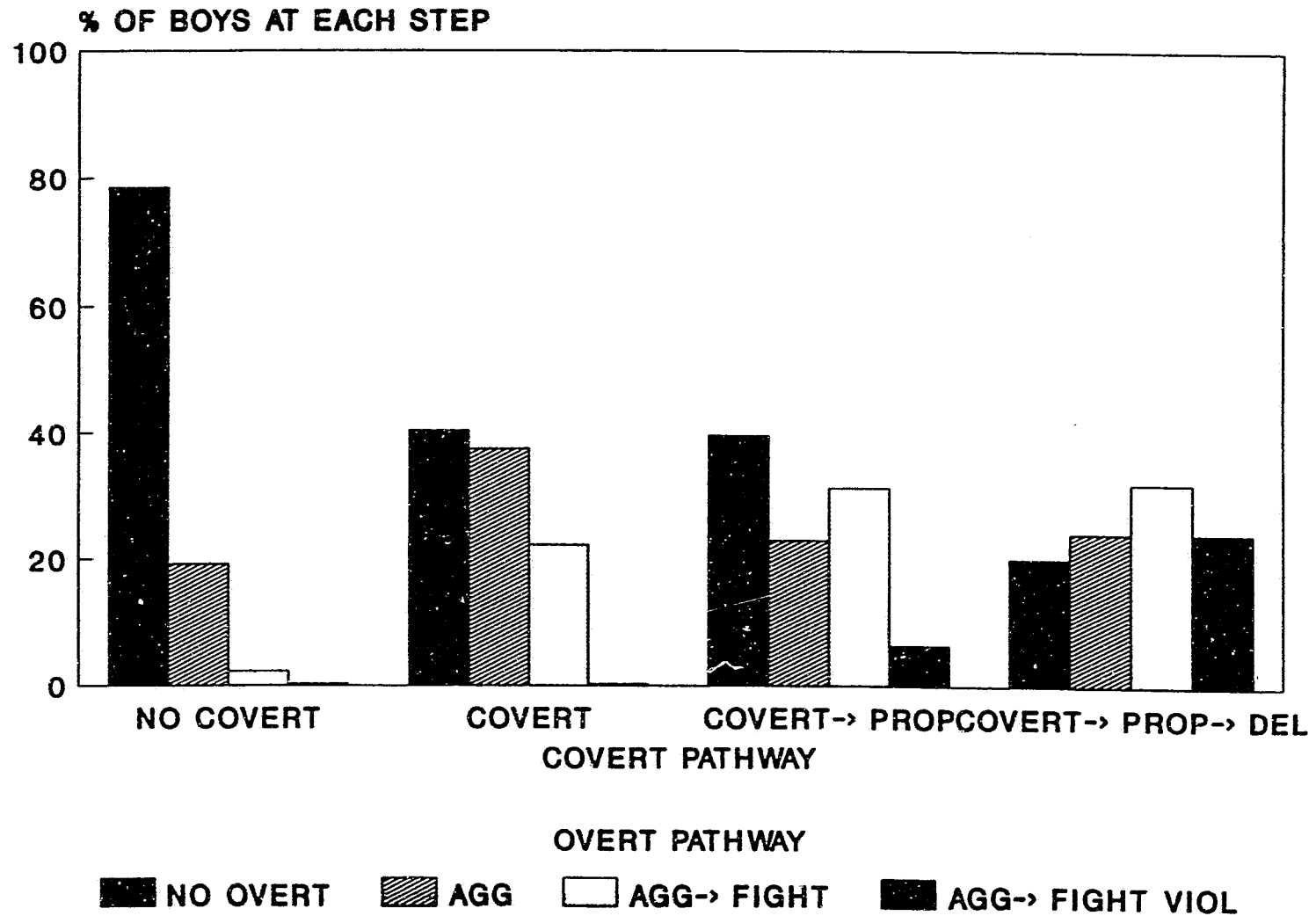
Not shown in Figure 7.5 is that there was a similar risk for acceleration into the full Authority Pathway at any stage of the Covert Pathway. For example 32% of those boys who had reached only first step and 40% of those boys who had reached the final step of the Covert Pathway had accelerated through the full Authority Pathway.

Thus, the relation between the Authority Conflict and the Covert Pathways was limited to an increased likelihood of covert behavior, but we did not observe that an acceleration into the Authority Conflict Pathway was associated with an acceleration into the Covert Pathway or the reverse.

Authority Conflict and Overt Pathways. Results on the overlap between the Authority Conflict and Overt Pathways was similar to that between the Authority Conflict and Overt Pathways. Although the relationship was statistically significant ($\chi^2(9) = 118.87, p < .0001; N = 469$), escalation in one pathway was not consistently associated with escalation in the other. A lack of overt symptomatology however, was related to a lack of authority conflict behaviors. For example, over three quarters (81.0%) of those who had not entered into the Overt Pathway had also not entered into the Authority Pathway.

Overt and Covert Pathways. Not surprisingly, the Overt and the Covert Pathways were significantly associated ($\chi^2(9) = 164.09, p < .0001; N = 416$), but the relationship was asymmetrical. As shown in Figure 7.6, those who had escalated to serious delinquency in the Covert Pathway were about equally

Figure 7.6: Percentage of Boys Penetrating the Overt Pathway at Each Stage of the Covert Pathway (Middle and Oldest Samples).



distributed across the various groups in the Overt Pathway. For lower categories of boys in the Covert Pathway (covert only, and covert followed by property damage), about 40% had not engaged in any of the steps of the Overt Pathway.

What was the likelihood that boys who had penetrated into the Overt Pathway also advanced on the Covert Pathway? As shown in Figure 7.7, 80% of those who had escalated to violence in the Overt Pathway also had escalated to serious delinquency in the Covert Pathway. Thus, the relationship between the Overt and the Covert Pathways was highly asymmetrical, with many of those at various stages in the Covert Pathway not entering the Overt Pathway, while those who reached more serious stages in the Overt Pathway showed penetration in the Covert Pathway. These results were in line with analyses on the full sample.

Pathways, Conduct Disorder, and the Frequency of Delinquent Acts

To what extent did boys in single or multiple pathways receive a diagnosis of Conduct Disorder (CD)? And did boys in single or multiple pathways differ in the frequency of their delinquent acts? To answer these questions, boys were classified according to behavior patterns showing their presence in exclusive or overlapping pathways. In order to increase the number of valid cases, subjects were classified into single or multiple pathways regardless of the temporal ordering of their behaviors. Thus, those boys who initially had been labelled as nonfitters were included in the analyses. However, only those in

Figure 7.7: Percentage of Boys Penetrating the Covert Pathway at Each Stage of the Overt Pathway (Middle and Oldest Samples).

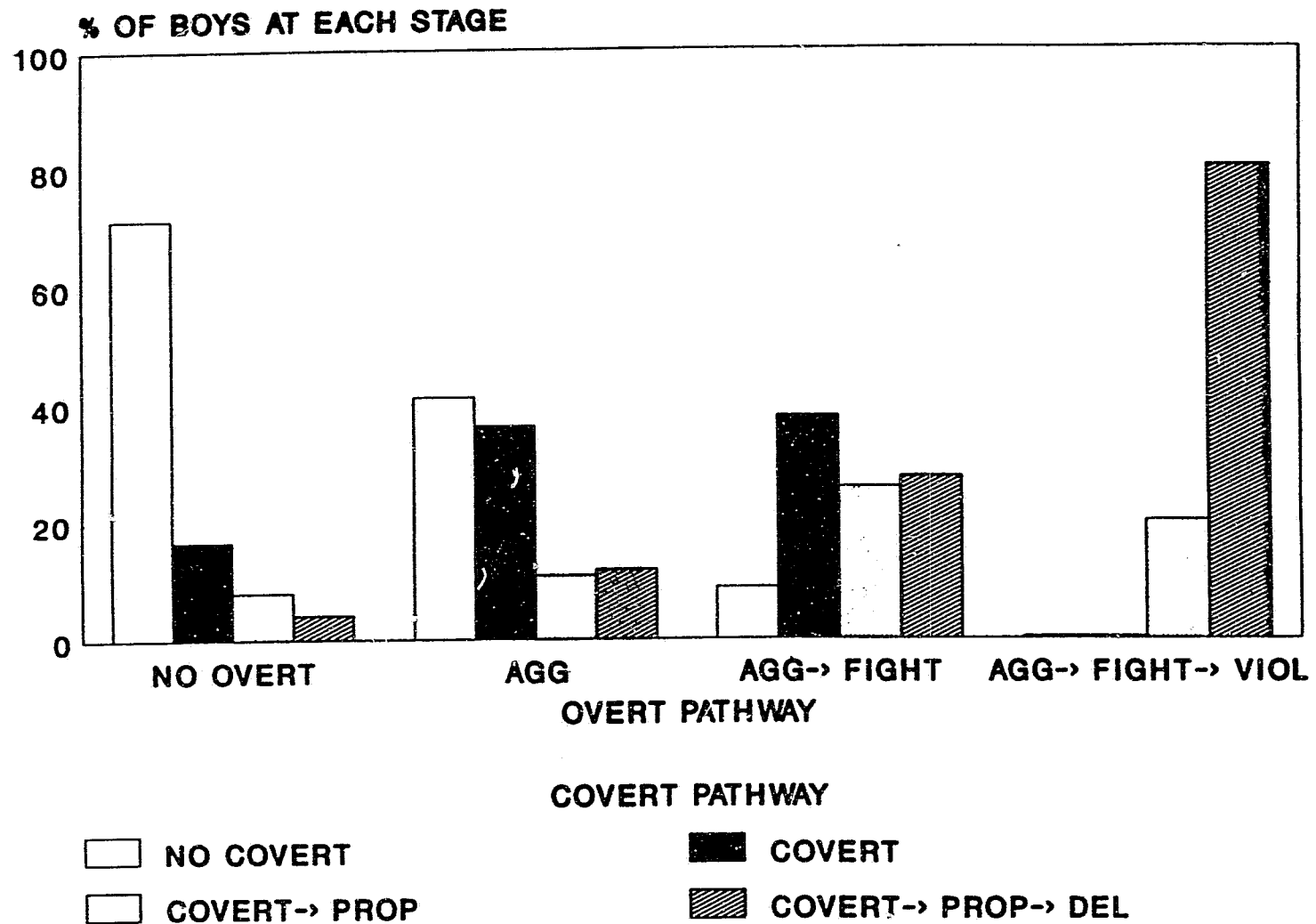
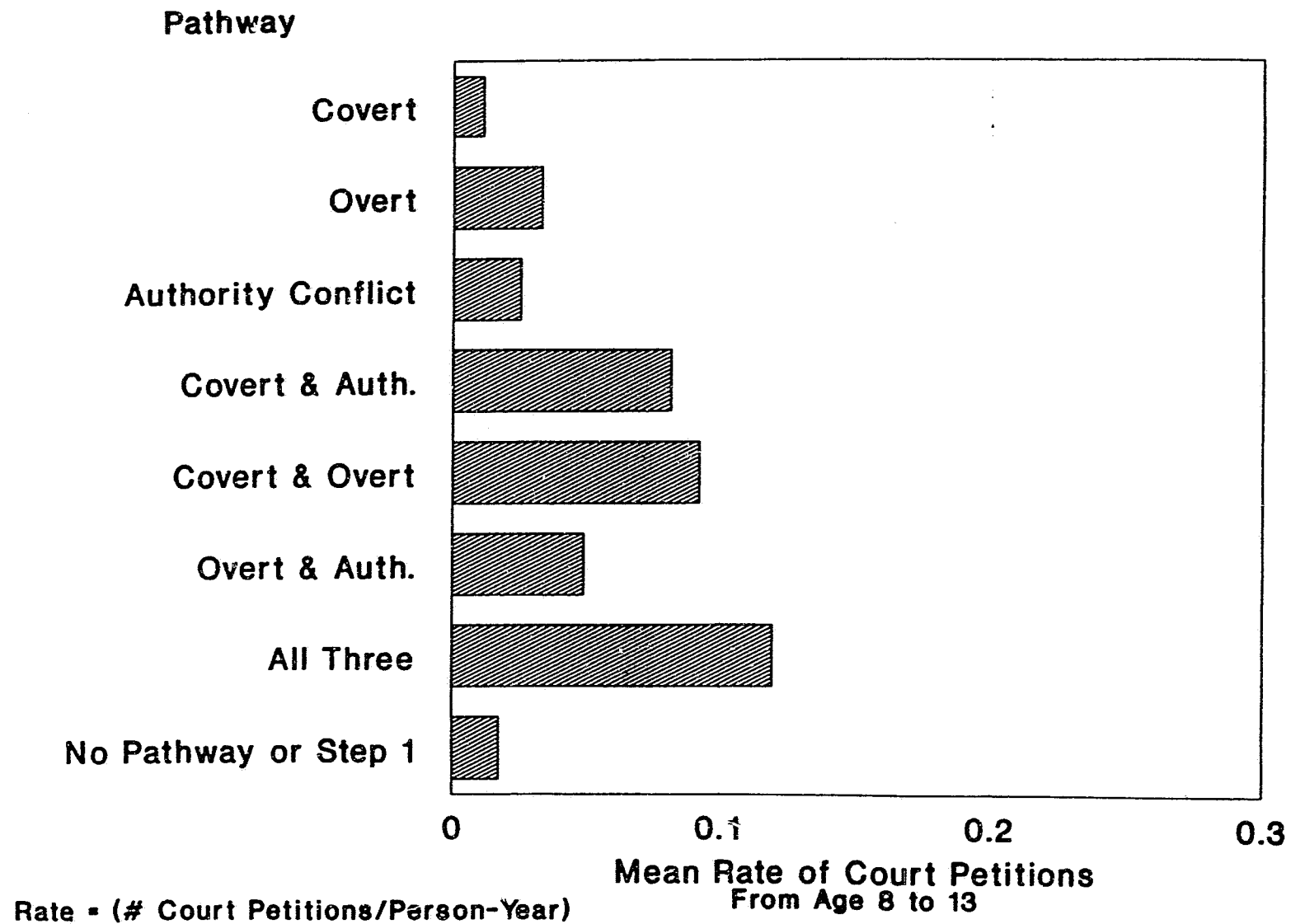


Figure 7.8: Mean Number of Court Petitions of Boys in Step 2 or 3 of Each Pathway
(Middle and Oldest Samples).



the second or third step of a pathway were included in order to exclude those with less serious problem behaviors. As a result the following groups were distinguished: those in Covert Pathway only ($N = 42$, $N = 79$, in the middle and oldest samples, respectively), those in the Overt Pathway only (24, 24), and those in the Authority Conflict (53, 15); those in dual pathways: Covert-Authority Conflict (41, 29), Covert-Overt (44, 122), Overt-Authority Conflict (39, 11); those in the triple pathway of Overt-Covert-Authority Conflict (96, 51); and, a group of subjects who either had entered only into the first step of a pathway or who had not entered in any of the pathways (121, 73).

Conduct Disorder. To what extent did boys in the different pathways have CD? A caveat of the following analyses is that the diagnoses and individuals' positions in pathways were not fully independent, because some symptoms of CD were used to establish the pathways. However, the diagnosis of CD was based on the occurrence of symptoms over the past six months at phase A, whereas the pathways referred to life-time information.

In the middle sample 36 boys received the diagnosis of CD, compared to 49 in the oldest sample. Table 7.6 shows the distribution of CD cases across the different pathway groups ($\chi^2(7) = 81.17$, $p < .0001$, and $\chi^2(7) = 47.16$, $p < .0001$, for the middle and oldest samples, respectively). For the two samples, close to 30% of boys in the triple pathway met DSM-III-R criteria for conduct disorder. Of the remaining CD boys, most were in the

Table 7.6: Percent of Boys with DSM-III-R Conduct Disorder Across the Three Pathways.

	Middle (n = 36) %	Oldest (n = 49) %
Covert Pathway Only	0.0	5.1
Overt Pathway Only	0.0	0.0
Authority Conflict Pathway Only	1.9	0.0
Covert and Overt Pathways	9.1	17.6
Covert and Authority Conflict Pathways	4.9	25.0
Overt and Authority Conflict Pathways	2.6	18.2
Covert, Overt and Authority Conflict Pathways	29.2	29.4
No behaviors in any pathway	0.0	0.0

dual Covert and Overt Pathway (9.1% and 17.6%, respectively).

Very few or none of the CD boys were in a single pathway. A limitation of the analyses, however, was the relatively low number of CD cases compared to the number of pathway distinctions.

Frequency of Delinquency. An important question is whether boys in different pathways show major differences in their rate of offending, according to juvenile court records and self-reports. The formulation of pathways was solely based on the order of age of onset of disruptive behaviors. When a small correction is applied (see below), the rate of delinquent acts is independent from the formulation of pathways and, therefore, constitutes an outcome measure that can confirm the utility of the pathway classification.

From prior research (Loeber & Schmalting, 1985b) we expected that boys in a single pathway of Covert behaviors would have a higher rate of delinquency than boys in a single pathway of Overt behavior. We further expected that those in the dual Covert and Overt Pathway would have a higher rate of delinquency than those in a single pathway. In addition, we postulated that those in the triple pathway (Covert, Overt, and Authority Conflict) would have the highest rate of delinquency.

The possibility existed that age would serve to confound the results on rate of offending, since both rate of offending and escalation into multiple pathways increases with age. Therefore, we examined the multiple R square in order to determine the amount of variance in rate of offending due to age. The results indicated that age accounted for a relatively small percent of the variance in rate of offending (Multiple R Squared = .07 for the middle sample; Multiple R Squared = .05 for the oldest sample). In addition, because age was also correlated with membership in multiple pathways, covarying the effect of age would have violated the assumptions of the ANOVA. Therefore, the analysis of variance on rate of offending was conducted without controlling for the effect of age.

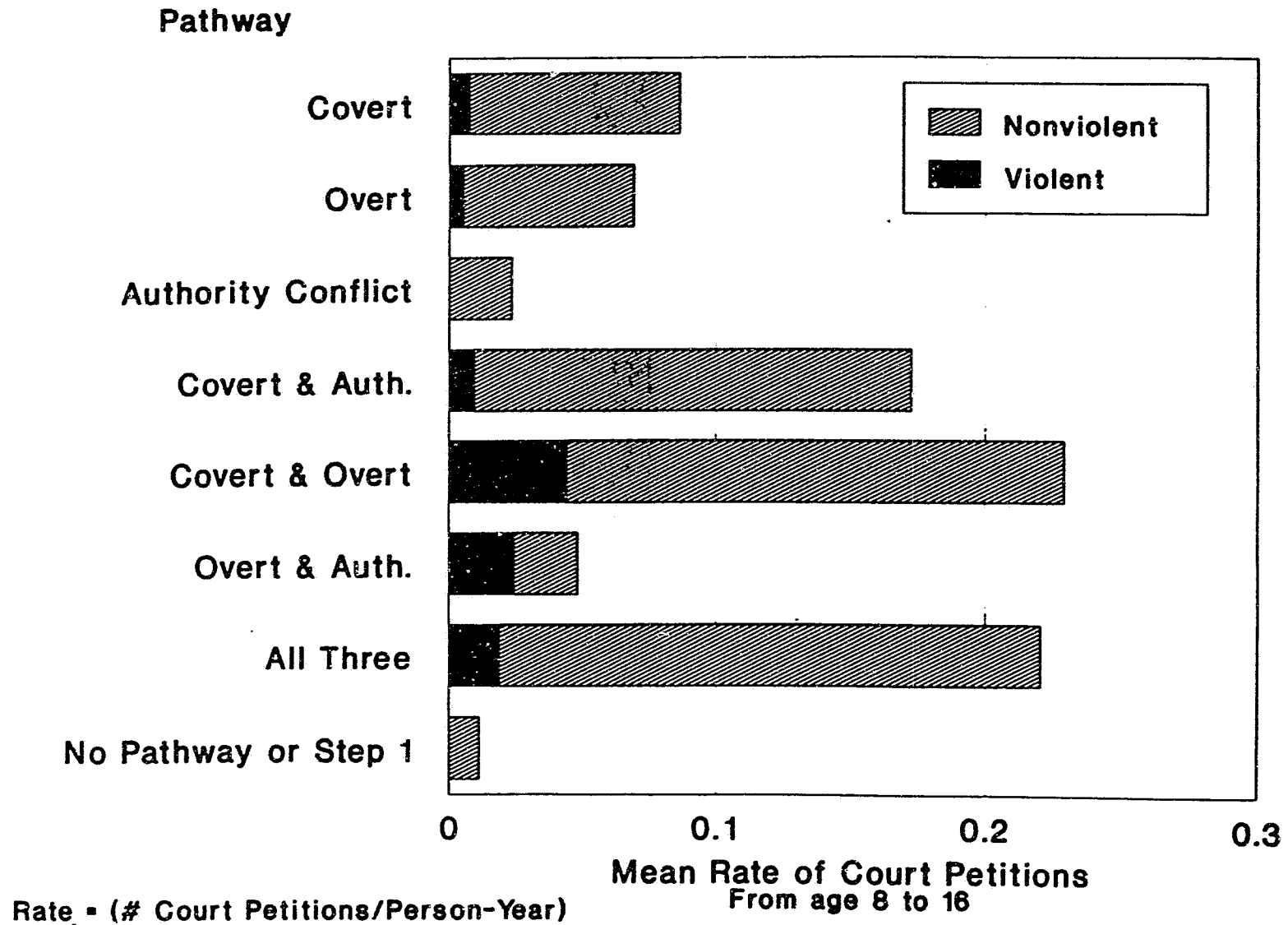
In the middle and oldest sample, court petitions were filed for 75 (14.8%) and 147 (29.1%) boys, respectively on 148 and 500 occasions. Figure 7.8 shows the mean number of court petitions per boy/per year in each of the pathways and combinations of pathways (fitters and nonfitters) in the middle sample ($F(7,452)$

= 3.82, $p = .0005$). The youngest age of court referral (8.2 years) was used as the lower limit for the calculation of the rate. The highest rate of court petitions per year for delinquency occurred for those boys who were in the Overt, Covert, and Authority Pathways ($M = .12$), with second highest for the boys in the Covert and Overt Pathway ($M = .09$), and the Covert and Authority Conflict Pathway ($M = .08$). Lower means were observed for boys in the other groups. Planned comparisons showed that boys in these three pathways had significantly higher mean rates of court petitions per year than boys in the other pathways ($p = .001$), but there were no significant differences among the three pathway groups.

Figure 7.9 shows the results for the boys in the oldest sample ($F(7,425) = 7.03$, $p < .0001$). The highest mean rate of court petitions per year occurred for boys in the dual Covert and Overt Pathways ($M = .23$), and in the triple Covert, Overt, and Authority Conflict Pathways ($M = 0.22$). The next highest were the boys in the Covert and Authority Conflict Pathways ($M = .17$). Planned comparisons yielded similar results as in the middle sample. The three highest pathway groups significantly differed from the other groups ($p < .001$), but did not significantly differ among each other.

The results were replicated with the yearly rate of self-reported non-trivial delinquency over the three year period. In order to control for the possible confound of higher rates of delinquency among boys in multiple pathways, (since by definition

Figure 7.9: Mean Number of Court Petitions of Boys in Step 2 or 3 of Each Pathway (Oldest Sample).



those boys have engaged in more than one incident of non-trivial delinquency) we subtracted from each pathway group a coefficient which represented the number of self-reported delinquent acts required for placement in one or more pathways. The results are shown in Figures 7.10 and 7.11 for the middle and oldest samples, respectively ($F(7,451) = 3.20$, $p = .007$, and $F(7,422) = 3.81$, $p = .0005$, respectively). In the middle sample, boys in the dual Covert and Authority Conflict Pathways, the dual Covert and Overt Pathways, and in the triple pathways compared to boys in the other groups, had the highest number of self-reported offenses ($M = 14.8$, $M = 8.8$, and $M = 12.3$, respectively). Planned comparisons showed that these groups scored significantly higher than boys in the other pathways ($p = .001$), but that boys in the triple pathways did not significantly differ from those in the dual pathways. For the older sample, boys in the triple pathways had the highest frequency of self-reported offenses ($M = 65.3$), followed by boys in the dual Covert and Overt Pathways ($M = 43.5$) and boys in the dual Covert-Authority Pathways ($M = 21.7$). Planned comparisons showed that the boys in the triple pathways and the two dual pathways scored significantly higher than boys in all other pathways ($p = .001$), while the boys in the triple pathways scored significantly higher than boys in the two dual pathways ($p = .04$).

Figure 7.10: Mean Number of Self-Reported Delinquency of Boys in Step 2 or 3 of Each Pathway.
(Middle Sample).

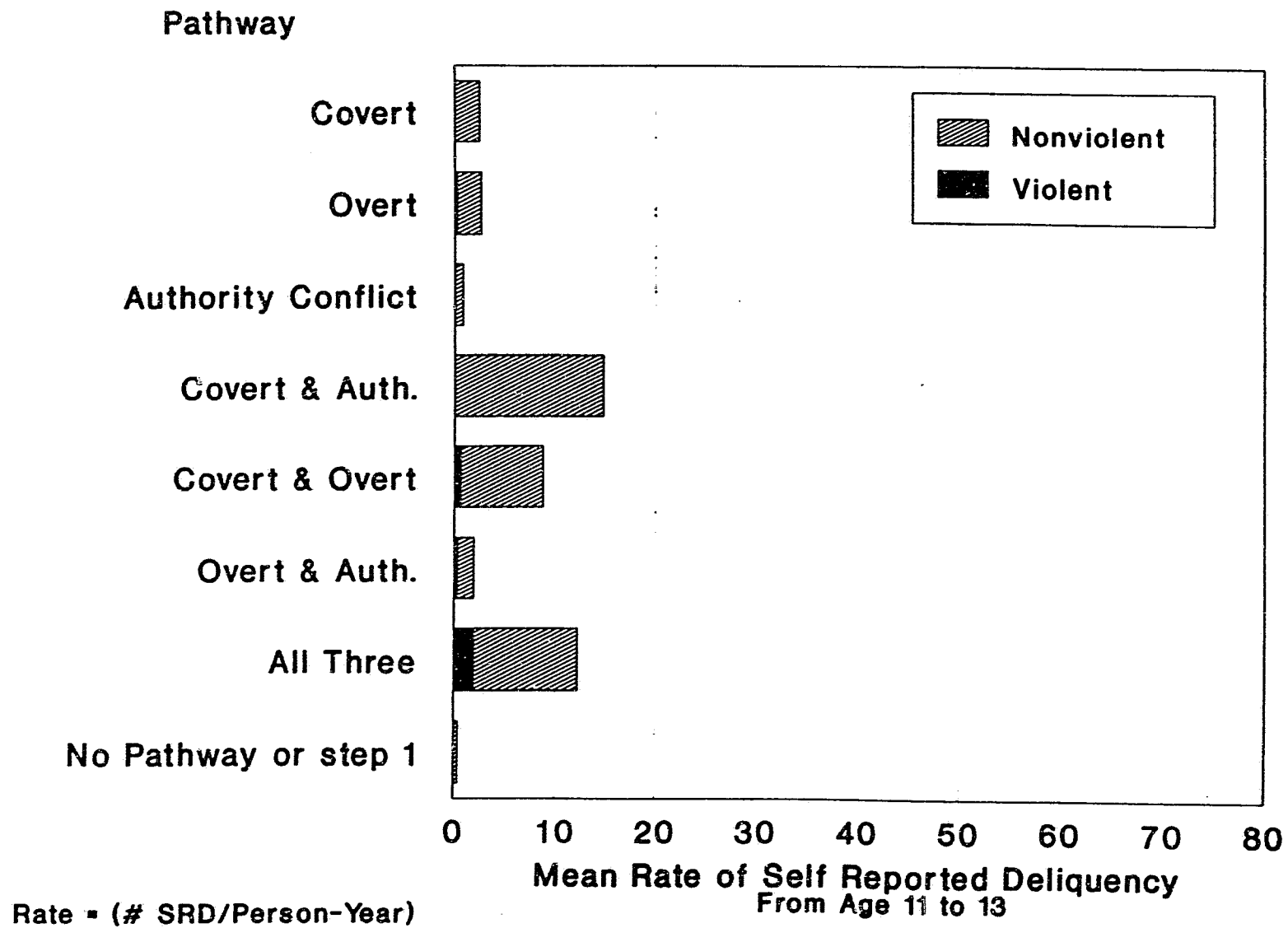
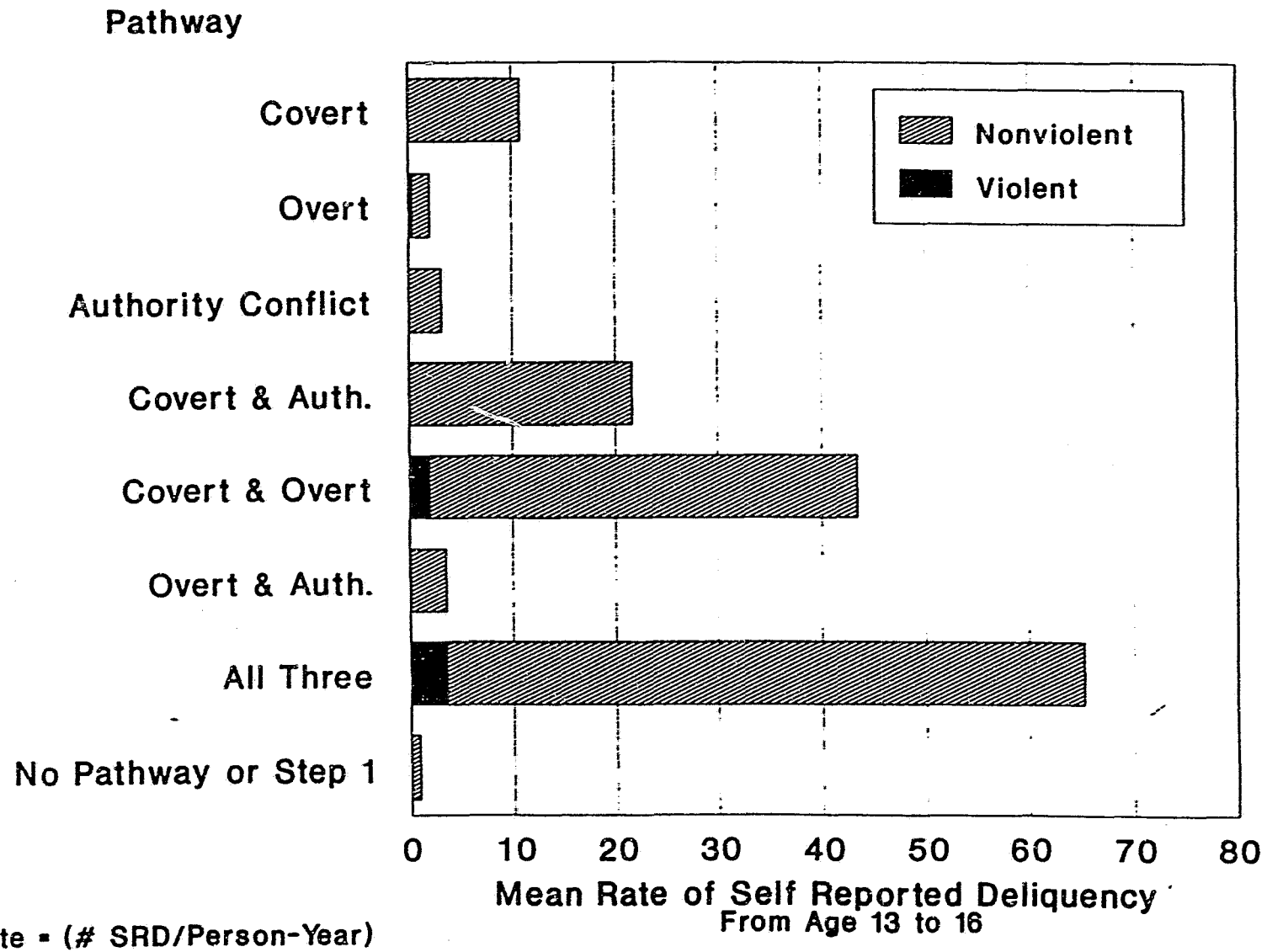


Figure 7.11: Mean Number of Self-Reported Delinquency of Boys in Step 2 or 3 of Each Pathway.
(Oldest Sample).



How does the rate of delinquency compare between ages 10 to 13 (the middle sample), and ages 13 to 16 (the oldest sample)? Between these age intervals, boys in the triple pathways and those in the dual Covert and Overt Pathways showed the highest increase in rate of delinquency by a factor of about six, compared to a factor of less than two for those boys in the dual Covert and Authority Pathways. Those in the single Covert pathway also showed a relative increase in the frequency of offending (by a factor of five), although at a lower level than in the other groups.

Frequency of Violence. Court petitions for a violent offense were filed for 17 boys (3.3%) in the middle and 47 boys (9.3%) in the oldest sample, who incurred 18 and 70 petitions for violence, respectively (this is exclusive of minor assault). For the middle sample, the distribution of the petitions of violent offenses across the various pathway combinations did not reach statistical significance, and for that reason are not included in Figure 7.8. In the oldest sample (Figure 7.9), the results were statistically significant ($F(7,425) = 6.39, p = .0001$). The highest frequency of court petitions for violence occurred in the dual Covert and Overt Pathways, the Overt and Authority Conflict Pathways, and in the triple pathways ($M = .04, M = .02, \text{ and } M = .02$, respectively). Planned comparisons showed that the mean scores for these groups were significantly higher than those for subjects in other groups ($p < .001$), and that the mean for the Covert and Overt Pathway was significantly higher than the mean for the triple pathway ($p = .007$).

Under the best conditions, we would expect that few or none of those boys classified in a Covert Pathway but not in an Overt Pathway, would have been brought to court for a violent offense. Chi-square analyses for the oldest sample showed a marginally significant relationship between the Overt-Covert Pathway distinction and Violent-Nonviolent offenses ($X^2(1) = 3.08$, $p < .08$). Only two (4.3%) of the boys in the oldest sample classified in the Covert Pathway (and not in the Overt Pathway) were brought to court for a violent offense. Thus, the results support the distinction between the Overt and Covert Pathways, showing that a very low percent of the boys who were in the Covert Pathway but not in the Overt Pathway committed violent offenses.

Finally, among all pathways, the highest rate of self-reported violence for boys in the middle and oldest samples was concentrated in the triple pathways group (Figure 7.10 and 7.11) ($F(7,451) = 3.22$, $p = .0024$, and $F(7,422) = 3.73$, $p < .0006$, respectively). Planned comparisons showed that the triple pathways and the Covert and Overt Pathways for both the middle and the oldest samples were significantly different from the remaining pathways ($p = .002$ and $p < .001$, respectively).

Discussion

The results constitute our first attempt at analyzing pathways in disruptive child behavior and should be viewed as preliminary. The two samples of boys were first studied when

they were on average 10 and 13 years old, and therefore we had to rely on caretakers' and boys' recall of the ages of onset of problem behavior up to that time. The prospective segment of the study was limited to three years, but the availability in the near future of further assessments over more years is likely to extend and modify the current findings.

On the more positive side, the study allowed us an initial detailed examination of developmental sequences and pathways in disruptive child behaviors, using reports from the children and their primary caretakers. The results, which were largely replicated across the two samples, can be summarized as follows.

The Characteristics of Pathways

- A developmental sequence of problem behaviors was found, starting with stubborn behavior and ending with serious delinquent acts.

- An atheoretical model was contrasted with a theoretical approach of identifying pathways based on three parallel pathways (Authority Conflict, Overt and Covert Behavior).

- The majority of subjects' development of disruptive behavior fit the hypothesized pathways of Authority Conflict (up to age 12), Covert Behavior, and Overt Behavior. Deviations from the postulated pathways were lowest for the middle sample (of whom 10.5% to 16.9% did not fit the pathways), and higher for the oldest sample (of whom 8.0% to 31.3% did not fit the pathways).

- For the Overt, Covert Pathways and early Authority Conflict Pathways, most boys entered the pathway at the first step, fewer at the second step, and least at the last step. Thus, boys who had experienced the onset of more serious acts tended to have experienced the onset of less serious acts earlier in life.

- Most of the results for white boys were replicated for black boys. However, more of the black boys started the Overt Pathway at the second step, while more of the white boys started that pathway at its first step.

- Compared to the Overt and Covert Pathways, the Authority Conflict Pathway had the earliest age of onset. Also, the age range at which its earliest step - stubborn behavior - started was very wide, indicating that Authority Conflict emerges over a wide period in childhood or adolescence.

Is There a Need to have Three Pathways? Several authors have argued that disruptive behavior develops only according to a single developmental pathway (Jessor & Jessor, 1977; Donovan, Jessor, & Costa, 1988). The current findings, however, show the utility of distinguishing between three pathways:

- Although the majority of boys displaying behaviors characteristic of one pathway also displayed behaviors characteristic of other pathways, 34.4% of those in the Covert Pathway had not shown an onset of behaviors characteristic for the Overt Pathway (the reverse was less than 10%).

- Although boys in the Authority Conflict Pathway had an increased risk of displaying behaviors characteristic of either the Overt or the Covert Pathways, escalation in the Authority Conflict Pathway was not clearly associated with escalation in either pathway.

- Boys' escalation into the Overt Pathway was more associated with their escalation into the Covert Pathway than boys' escalation in the Covert Pathway was associated with their escalation in the Overt Pathway.

- Boys in either the dual Covert and Authority Conflict Pathways or in the dual Covert and Overt Pathways and boys in the triple pathway (Overt, Covert, and Authority Conflict) displayed the highest rates of court petitions per year. Results of self-reported offending largely replicated these findings, except that those boys from the oldest sample who were in the triple pathways showed the largest rate of delinquent acts.

- The results showed that whereas penetration in the Authority Conflict Pathway only or in the Overt Pathway only is not associated with frequent offending, the combination of these pathways with the Covert Pathway is highly associated with frequent offending.

- Boys in the triple pathway and in two of the dual pathways (Covert and Overt Pathway, and Covert and Authority Conflict Pathways) were most likely to have a petition filed in the juvenile court for a violent offense (two of these groups, the triple pathways and the dual Covert and Overt Pathways, also showed the highest rate of self-reported violence).

- Boys in either the Overt Pathway only, in the Authority Pathway only, or in the dual Overt and Authority Conflict Pathways had the lowest rate of delinquency.

Conclusion. In summary, initial data were presented showing the validity of the distinction between the three pathways, which discriminated better between different degrees of deviance in boys than would have been possible with the formulation of a single pathway. The combination Overt and Covert Pathway was associated with a high rate delinquency, while the combination of these two pathways with the early Authority Conflict Pathway was associated with a further increase in the rate of delinquency. Whereas the combination of Authority Conflict and the Overt Pathways was associated with a relatively high rate of delinquency, this was not the case for the combination of Authority Conflict and Overt Pathways. These, and other findings mentioned above, argue against a simple additive effect of pathways in producing deviant outcomes; instead, certain combinations of pathways are more powerful indicators of deviance than other combinations of pathways. It should be kept in mind, however, that this conclusion needs to be validated against other outcomes than delinquency as well.

In addition to the data provided by this study, indirect support for the current formulation of pathways toward serious disruptive child behavior is provided by our earlier literature review on pathways (Loeber, 1988). As mentioned in the introduction, the review postulated two broad pathways, called

the Nonaggressive Pathway and the Aggressive/Versatile Pathway. Table 7.7 summarizes the relationship between these pathways and the empirical pathways documented in the current study. Briefly, The Nonaggressive Pathway from the literature review corresponds with the following empirically-based pathways: Covert Pathway only, and the dual Covert and Authority Conflict Pathway. Particularly, this dual pathway is associated with a high frequency of delinquency. The Aggressive-Versatile Pathway from the literature review corresponds with the following empirically-based pathways: Overt Pathway only; Overt and Authority Conflict Pathways, Overt and Covert Pathways, and Overt, Covert, and Authority Conflict Pathways. The highest frequency of delinquency was in the dual Covert and Overt Pathways, and the dual Covert and Authority Conflict Pathways and in the triple pathways, while the highest frequency of violence occurred in the dual Overt-Covert Pathways and in the triple pathways.

Table 8: Relationship Between Pathways Based on Prior Literature Review and Pathways Observed in the Current Study.

<u>Pathways Identified in Literature Review</u> (Loeber, 1988)	<u>Pathways Identified in Current Study</u>
NonAggressive Pathway	Covert Pathway only Covert and Authority Conflict Pathways*#
Aggressive-Versatile Pathway	Overt Pathway only Overt and Authority Conflict Pathways Overt and Covert Pathways# Overt, Covert, and Authority Conflict Pathways*#

* High frequency of delinquent acts.

High frequency of violent acts.

Although the data provide a unique opportunity to explore the developmental course of disruptive behavior, several caveats need to be acknowledged. The fact that the boys had not gone through the full risk period of disruptive behavior, impeded the investigation of their escalation to more serious and rare behaviors (e.g., robbery and car theft). Instead, in the present analyses, these behaviors were subsumed in one category with moderately serious delinquency. Also, we had to limit the number of disruptive behaviors included in the analyses. Even with the recall procedures used, it was inevitable that ties in the age of onset would occur, which had to be taken into account in the results. Although every effort was made to gather complete data from the subjects, a small proportion dropped out or did not provide us with all the data we needed for these analyses. Therefore, the pathways for that group of subjects could not be determined. It should also be kept in mind that the results are based on an "enriched" community sample of boys, in which boys with current disruptive behavior were oversampled. Therefore, the oversampling of the most disruptive boys is reflected in the prevalence of disruptive behaviors, sequences in those behaviors, and the number of subjects in different segments of pathways. Lastly, this study was concerned with the formulation of pathways on the basis of the onset of behaviors, irrespective of the frequency of specific behaviors subsequent to onset. Therefore, the analyses do not purport to address whether the behaviors within a pathway persisted nor at what rate they persisted

(although we showed the relationship between pathways and the overall frequency of offending). Also, developmental sequences in disruptive child behavior should be seen in the light that some behaviors (e.g., joy riding or car theft) are quite age-specific in that they depend on physical and skill development. Finally, the present results concern boys only; it remains to be seen to what extent pathways in disruptive behavior for girls are similar, given that their prevalence of overt acts is usually lower than that of boys.

Other Issues in Developmental Pathways. Elsewhere, Loeber, Keenan et al. (1992) have shown that the diagnosis of Attention Deficit Hyperactivity Disorder is particularly associated with an escalation in the Overt Pathway; also, escalation in the seriousness of substance use is especially associated with escalation in the Overt Pathway (Loeber, Russo, Stouthamer-Loeber, & Lahey, 1992). These and planned analyses are but initial investigative steps to further link social and behavioral variables to the pathways and examine more complex models of their interaction over time. The current analyses represent just one step toward addressing other major questions, such as whether one can distinguish between those youth who just experiment in problem behavior and those who persist over time. We know from prior longitudinal studies that persistence in delinquency is associated with an early onset of offending (Farrington et al., 1990). How early can these eventually-persistent offenders be identified? Another important question is why certain

individuals do not enter a given pathway, why some only progress to early stages of a pathway and then desist, and why a third group advances towards the most serious behaviors in a pathway and persist over time. Here, sets of variables (e.g., family functioning, peer contacts, education, and neighborhood influences) will need to be brought in and multivariate analyses will need to be undertaken to determine which known risk and protective factors can best explain differences among boys in their penetration of pathways, and within-individual changes over time.

Also, more sophisticated statistical analyses are needed in order to compare and test competing models of development. Other sets of analyses will need to focus on those who did not fit the postulated pathways. Did their development proceed in other directions? And are there any characteristics of these exceptions which set them apart from those who fit the pathways? The Pittsburgh Youth Study, with its subsequent follow-ups of the subjects, has the potential to address these questions, and is strengthened by the continued low attrition rates. Also, the fact that findings can be replicated in the middle and the oldest sample, and eventually in the youngest sample (who were first studied in first grade), will greatly buttress our knowledge about the course and causes of developmental pathways in disruptive child behavior.

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CHAPTER 8

FAMILY ATTACHMENT AND DELINQUENCY

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INTRODUCTION

The family plays a primary role in shaping the behavior of youth in society. As children develop, parents create the setting in which the central values and expectations of the wider society are transmitted. While specific parenting behaviors such as supervision affect child behavior (see Chapter 9), children are also restrained from acting out natural but illicit wishes and temptations by general emotional attachments to their parents. Likewise, feelings of affection expressed between parent and child are important indicators of how much parental wishes and standards matter to the child and are likely to be respected. Because of this, children who are strongly attached to their parents during childhood and adolescence are expected to be less likely to follow delinquent or drug abusing paths.

The role of positive family relations as an important buffer against delinquency and drug use is a feature of several criminological theories. Social control theory, for example, has maintained that parents are primary sources of order in society (Hirschi, 1969; Nye, 1958). Social learning theory also incorporates the notion that parents are central sources of children's learning and socialization into mainstream behavior

(Patterson, 1986). Integrated theories invariably include family attachment as a key component (Elliott, Huizinga and Ageton, 1985; Thornberry, Krohn and Lizotte, 1991).

Empirical studies of children and adolescents have in fact consistently shown a strong association between the attachment a child feels for his or her parents, and reduced delinquency (Loeber and Stouthamer-Loeber, 1986). As a result, intervention programs for delinquent and drug abusing youth have generally targeted the family as a central component of efforts to deal with such problems (Geismar et al., 1986; Loury, 1987).

Although evidence of the important role of family attachment in the etiology of delinquency and drug use is widespread, a number of important aspects of the relationship of attachment and delinquency are relatively unexplored. These issues form the core around which this chapter is organized.

The analysis assesses the importance of both parent and adolescent perceptions of attachment. Prior research has emphasized the adolescent's attachment to parents, usually focusing on attachment to mother. Analysis in this chapter continues that tradition. In addition, however, it assesses how the attachment of the parent, usually the mother, feels towards the adolescent is related to delinquency. The closer the attachment of the mother to her child, the more apt she is to care about the child's behaviors, to supervise and monitor the child, and so forth. All of these factors suggest that attachment of mother to child will be associated with lower delinquency for the child.

The analysis in this chapter is also directed at evaluating how this relationship changes over the life-span as older adolescents move out into the world, and begin to disengage from their parents. Most importantly, the unique nature of the data allows us to look at the mutual interrelationships of attachment and delinquency. That is, it is possible that delinquent behavior influences adolescent and parent feelings about family life, as well as being affected by the climate of the family. The final issue is thus the importance of understanding the relative strength of these two directions of causal influence and the way they interact in order to design effective interventions to counteract youth problems.

METHODS

All three study sites include data on the youth's perception of attachment to parents. In addition, Rochester and Pittsburgh include data on parent's perceptions of attachment to the child. The Denver and Rochester sites include both males and females, and Pittsburgh and Denver subjects include younger children in addition to youth. Thus the combined data allow us to replicate the basic analysis across a combination of age, ethnic and gender subgroups, and to include child and parent perceptions of attachment.

The joint analysis involves data from a maximum of three annual time periods. For the Denver site, owing to the reference point of the questions, the best concurrent measurement of attachment and delinquency derives from Year 1 attachment and Year 2 delinquency and then Year 2 attachment and Year 3

delinquency. This means that cross-sectional analysis is only available for the first two time periods. In Rochester, attachment is measured in Waves 1, 3 and 5, and in Pittsburgh it is measured in Waves 2, 4 and 6, allowing for the relationship to be estimated at all three time periods at these sites.

Initially the analysis compares the cross-sectional relationships between attachment and delinquency for the total samples, and then for age, gender and race/ethnic subgroups across sites. The analysis goes on to explore the relationship between delinquency and later attachment, and between attachment and later delinquency at each study site, again replicating where possible across major demographic subgroups. Finally, panel analysis conducted only at Rochester and Denver allows us to examine a model of reciprocal causal relationships between attachment and delinquency over three years.

MEASUREMENT

Each project developed a set of items which measure youth's attachment to family. Two of the three projects, Pittsburgh and Rochester, also contain similar attachment items in both the parent and child interviews, thus tapping attachment from both perspectives. At all sites, items measure qualities of positive parent-child relationships, such as perception of warmth, liking, and the absence of bad feelings between parent and child. The actual items are presented in Table A8.1 in Appendix 8A. Attachment scales have high reliabilities, ranging between .66 and .85.

In these data, attachment scales generally refer to attachment to mother and attachment by mothers since mothers are overwhelmingly the primary caretakers of the sample members. In Rochester, for example, mothers are the primary caretakers for 85 percent of the youth and step-mothers are for another 10 percent. The remaining 5 percent include fathers, grandparents, aunts, and other relatives. To preserve sample size all subjects are included in the analysis, but the reader should realize that attachment to family almost always refers to attachment to mother.

Delinquency is measured by examining the prevalence of street crimes and drug use by the use of marijuana plus other drugs. The child delinquency measure differs somewhat from the youth street delinquency measure, as adaptations are made in the scale content to make the scale more appropriate for the younger age group. The drug scale is not used with the child samples. All these scales are described in more detail in Chapter 3.

CROSS-SECTIONAL RELATIONSHIPS

Cross-sectional relationships between youth's attachment to family and street crime are presented in Table 8.1. Results demonstrate a consistent relationship between attachment to family and street delinquency at all three time periods. For example, in Pittsburgh at Year 1, 32.1 percent of the adolescents reporting low attachment were involved in street crime, as opposed to 16.5 percent of those with high attachment. In Denver, 21.7 percent of those with low attachment reported they were engaged in street delinquency, while only 13.2 percent of

Table 8.1 Cross-Sectional Relationship Between Attachment to Family and Street Delinquency

	Year 1			Year 2			Year 3		
Street Delinquency:	Attachment to Family		n	Attachment to Family		n	Attachment to Family		n
	Low	High		Low	High		Low	High	
	%	%		%	%		%	%	
<u>YOUTH REPORT</u>									
Denver	21.7	13.2**	(774)	26.6	17.4*	(743)	--	--	
Pittsburgh	32.1	16.5***	(992)	33.3	16.0***	(913)	33.3	17.4***	(886)
Rochester	31.6	22.1**	(982)	27.0	18.4**	(960)	16.6	13.5	(912)
<u>PARENT REPORT</u>									
Pittsburgh	26.9	17.8**	(1006)	29.7	17.0***	(925)	29.8	18.8**	(913)
Rochester	34.7	20.6***	(981)	24.3	20.0	(933)	23.0	11.6***	(827)

* p < .05 ** p < .01 *** p < .001

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

those reporting attachment were so engaged. Parental perceptions of low attachment are similarly related to delinquency.

Table 8.2 presents a similar analysis for drug use. The results parallel those reported for street crime. Youth perceiving low attachment to their parents are significantly more likely to engage in drug use than those with higher attachment. Also, when parents report low attachment to their children, the children are more likely to report drug use. In several cases, as with street delinquency, twice as many adolescents from poorly attached homes engage in drug use, in comparison to those from more attached family situations. While overall the results are similar in three sites, and in all time periods, the results for the Pittsburgh site did not attain statistical significance because of the low prevalence of drug use among subjects at that study site.

DEMOGRAPHIC COMPARISONS

The analysis reported above was repeated for gender and race/ethnic subgroups, as well as for the child samples. Because of the large number of tables generated by this, only child and youth perceptions of attachment are analyzed. Results are reported in Appendix 8A as Tables A8.2 to A8.6.

In general, results are similar across subgroups. Comparing males and females (Tables A8.2, A8.3), adolescents who report low attachment are consistently more likely to engage in street delinquency, as well as to use drugs. Some subgroup comparisons do not attain significance, although percentage differences are similar to those in other subgroups. This may be due to reduced

Table 8.2. Cross-Sectional Relationship Between Attachment to Family and Drug Use

	Year 1			Year 2			Year 3		
	<u>Attachment to Family</u>			<u>Attachment to Family</u>			<u>Attachment to Family</u>		
	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>
<u>Drug Use:</u>	<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>	
<u>YOUTH REPORT</u>									
Denver	22.5	12.6***	(762)	20.0	13.1*	(727)	--	--	
Pittsburgh	6.1	3.4	(992)	4.4	4.1	(913)	9.0	5.7	(886)
Rochester	20.7	10.4***	(981)	27.8	12.4***	(960)	19.6	11.5***	(911)
<u>PARENT REPORT</u>									
Pittsburgh	6.2	3.3	(1006)	6.9	4.1	(925)	5.0	8.1	(916)
Rochester	16.9	11.9*	(980)	21.4	14.3**	(933)	22.8	11.3***	(825)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

statistical power owing to small subgroup size in some subsamples. While the results are generally similar, one substantive difference noted is that attachment is more weakly related to street crimes for females and to drug use for males than it is for the total sample.

For racial and ethnic groups (Tables A8.4, A8.5), the core finding of an association between attachment to family and both delinquency and drug use is replicated. Where sample subgroup sizes are sufficient to evaluate this relationship, results again show a significant association overall.

Finally, Table A8.6 presents this relationship for the child sample in Denver and Pittsburgh for the street crime measure. Overall, the association between attachment and street crimes seems somewhat weaker for these younger samples than it is for the youth samples. The relationship in Denver is particularly weak, failing to attain statistical significance.

SUMMARY

The cross-sectional relationship between attachment to family and delinquency noted in previous research is clearly replicated across these three projects. We consistently find weaker family attachment among those youth who engage in street delinquency and drug use. This relationship is generally replicated across major demographic subgroups, although the relationships are somewhat attenuated. Parent reports of weak attachment appear to provide similar indicators of risk for delinquency as child and youth reports. Because of this, the subsequent longitudinal analyses will delete the data on parent

reports of attachment for the subgroup analyses. For the total group analysis, the tables reported with this text, however, both parent and child data are considered.

LONGITUDINAL RELATIONSHIPS

It is not clear from the previous analysis whether weak family attachment is the cause or the effect of increased prevalence of street delinquent and drug use. It is reasonable to think of reduced attachment to the family as reducing controls over behavior and thereby leading to an increase in delinquency and drug use. However, it is also possible that increased delinquency and drug use create tension within the family, thereby decreasing parental attachments. The remainder of this chapter examines the issue of causal order between these variables.

THE EFFECT OF ATTACHMENT TO FAMILY ON DELINQUENCY AND DRUG USE

We initially examine the effect of earlier attachment to family on later delinquency and drug use. Table 8.3 compares the percentage of youth involved in delinquency at Year 2 by levels of attachment at Year 1, and also the percentage of youth delinquent at Year 3 by levels of attachment at Year 2. The analysis is then repeated looking at the effect of earlier attachment on later drug use, and these results can be found in Table 8.4.

There is some evidence that weak initial levels of family attachment are related to later street delinquency. For example, in Pittsburgh, almost 30 percent of youth with poor attachment at Year 1 were involved in street delinquency at Year 2, in

Table 8.3. Relationship Between Earlier Attachment to Family and Later Street Delinquency

Year 1 to Year 2				Year 2 to Year 3				
Year 2 Delinquency:	Attachment to Family at Year 1		n		Year 3 Delinquency:	Attachment to Family at Year 2		n
	Low	High				Low	High	
	%	%				%	%	
<u>YOUTH REPORT</u>								
Denver	21.7	13.2**	(774)		26.6	17.4**	(743)	
Pittsburgh	29.7	17.2***	(968)		33.6	17.3***	(901)	
Rochester	22.3	20.6	(841)		17.0	12.2*	(898)	
<u>PARENT REPORT</u>								
Pittsburgh	30.4	16.9***	(980)		31.2	17.9***	(910)	
Rochester	25.3	20.2	(860)		19.7	11.5**	(871)	

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 8.4. Relationship Between Earlier Attachment to Family and Later Drug Use

Year 1 to Year 2					Year 2 to Year 3			
	Attachment to Family at Year 1					Attachment to Family at Year 2		
Year 2	Low	High			Year 3	Low	High	
<u>Drug Use:</u>	<u>%</u>	<u>%</u>	<u>n</u>		<u>Drug Use:</u>	<u>%</u>	<u>%</u>	<u>n</u>
<u>YOUTH REPORT</u>								
Denver	22.5	12.6***	(762)		20.1	13.1*		(727)
Pittsburgh	6.7	3.9	(992)		6.8	6.3		(913)
Rochester	26.9	12.6***	(840)		19.7	10.5***		(897)
<u>PARENT REPORT</u>								
Pittsburgh	7.7	3.6*	(1006)		9.1	6.0		(925)
Rochester	21.8	15.0**	(859)		18.4	11.4**		(870)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

comparison to 17 percent of youth with higher attachment at Year 1. However, the magnitude of the differences between the percentages reported in Table 8.3 are not very large, suggesting that the relationship between earlier parental attachment and later delinquency is not very strong.

The analysis using drug use as the outcome variable suggests that earlier levels of weak family attachment may have somewhat stronger effects on subsequent drug use, than on subsequent street delinquency. Relationships are significant across sites and across parent and youth respondents, with the exception of Pittsburgh data where, as indicated, the drug use base rate is low.

This longitudinal analysis was replicate for gender and race/ethnic subgroups, and also for the child samples. The results appear in Appendix Tables A8.7 through A8.11. Although the direction of findings supports the relationship between earlier attachment and later problem behaviors, the relationship is attenuated when analysis considers subgroups. Few consistent differences emerge in the pattern of subgroup findings. There are some indications that for males, earlier attachment is more closely related to later street delinquency, and less important in accounting for later drug use, whereas for females, the reverse tends to be the case. In both cases, family effects are stronger for behavior which is relatively more common within the subgroup.

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There is some further evidence of a relationship between earlier attachment to parents and later street delinquency and

drug use for ethnic/racial groups (Tables A8.9, A8.10). The results suggest, however, that the relationship is spotty and inconsistent. For example, attachment and later drug use are more strongly associated in the Hispanic sample, and more weakly associated for the white subsample.

As further evidence for the inconsistent effect of attachment, it appears to have little effect on street delinquency at younger ages (Table A8.11). None of the four relationships attains statistical significance.

THE EFFECT OF DELINQUENCY AND DRUG USE ON ATTACHMENT TO FAMILY

The data in Tables 8.5 and 8.6 reverse the analysis reported above, and consider whether youth who engage in delinquency and drug use subsequently disengage from their families, by becoming more weakly attached to parents. In general, the relationship between earlier street delinquency and later attenuated attachment is significant and reasonably strong in the perceptions of both parent and child. However, the impact of earlier drug use on later attachment is not consistently strong although the differences are in the expected direction. In general, it would appear that engaging in street crime has a greater impact on reducing parental attachment than does drug use.

In terms of the subgroup analyses (Tables A8.12 through A8.16), the finding that delinquency leads to weaker attachment is generally replicated for males and females, although the link between earlier drug use and later attenuated attachment appears weaker for males than for females.

Table 8.5. Relationship Between Earlier Street Delinquency and Later Attachment to Family

Year 1 to Year 2				Year 2 to Year 3			
Year 2 Low Attachment to Family :	Street Delinquency at Year 1		n	Year 3 Low Attachment to Family :	Street Delinquency at Year 2		n
	No %	Yes %			No %	Yes %	
YOUTH REPORT							
Denver	30.6	46.6***	(840)		24.8	41.7***	(774)
Pittsburgh	18.9	32.9***	(913)		20.1	33.3***	(886)
Rochester	30.1	36.9	(843)		27.8	33.8	(886)
PARENT REPORT							
Pittsburgh	38.0	23.0***	(925)		30.5	18.4***	(915)
Rochester	39.2	31.0*	(828)		39.4	23.6***	(817)

* p < .05 ** p < .01 *** p < .001

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 8.6. Relationship Between Earlier Drug Use and Later Attachment to Family

Year 1 to Year 2				Year 2 to Year 3			
Year 2 Low Attachment to Family	Drug Use at Year 1		n	Year 3 Low Attachment to Family	Drug Use at Year 2		n
:	No %	Yes %		:	No %	Yes %	
<u>YOUTH REPORT</u>							
Denver	29.9	53.2***	(834)		24.7	42.5***	(763)
Pittsburgh	21.4	26.0	(913)		22.3	30.4	(886)
Rochester	30.6	38.1	(839)		26.6	41.9***	(884)
<u>PARENT REPORT</u>							
Pittsburgh	33.3	25.7	(925)		28.5	20.5	(916)
Rochester	38.6	31.7	(825)		37.7	24.6***	(816)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

The relationship between earlier street delinquency and drug use and later weak attachment is evident in the black and Hispanic subsamples, but appears less so in the white subsample, possibly because of the small subsample sizes (Tables A8.14, A8.15). Finally, for the child samples (Table A8.16), we see that children who enter into street crime at an early age tend to be less attached to parents at the next year. At younger ages, therefore, the direction of this relationship appears to be more from delinquency to attachment than from attachment to delinquency.

SUMMARY

The results of the longitudinal analysis are by and large consistent with the concurrent results reported earlier. That is, there appears to be a relationship between attachment and delinquency; weak attachment is associated with later delinquency, and delinquency is in turn associated with subsequently reduced attachment. However, these findings are not particularly strong or consistent, particularly in the subgroup analyses.

PANEL ANALYSIS

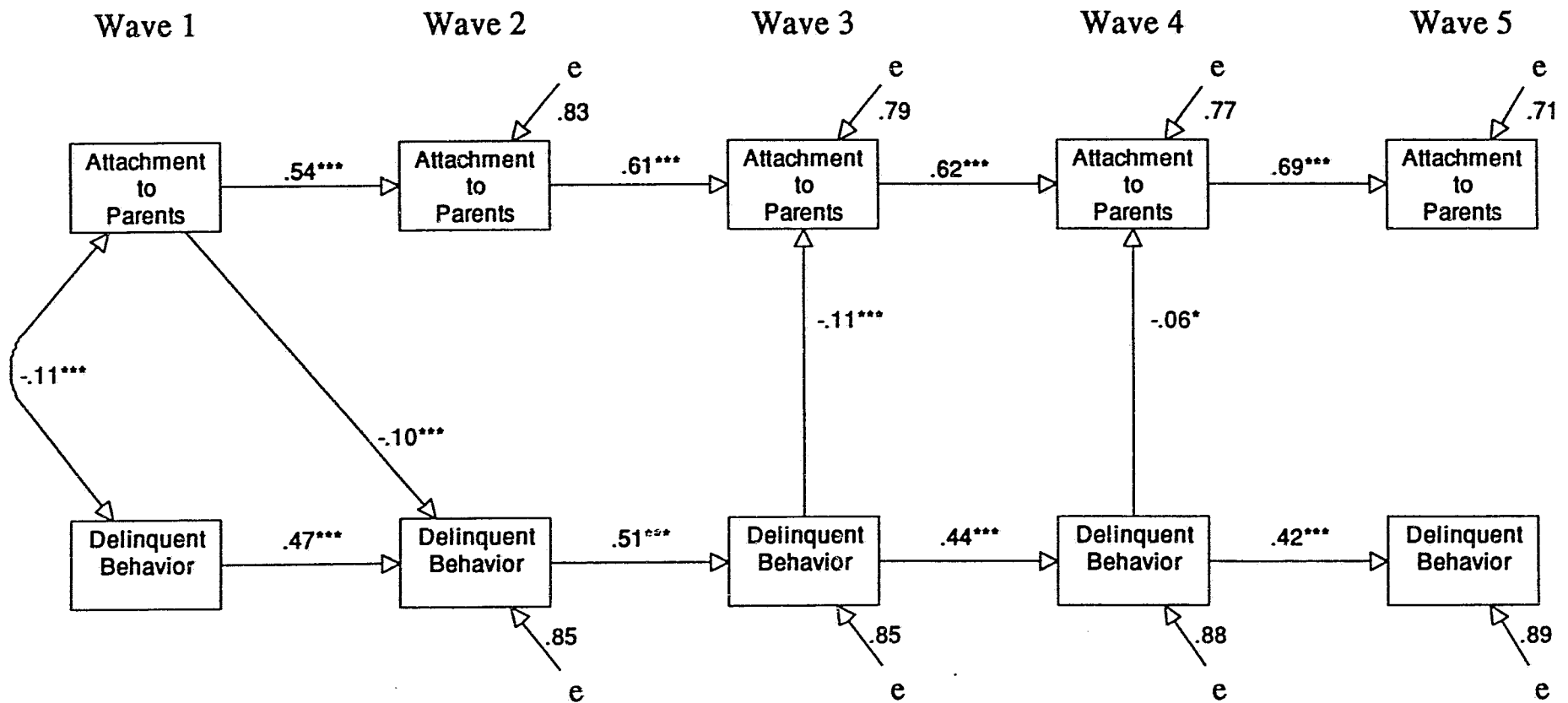
The preceding analysis is a weak test of the proposition that attachment and delinquency are mutually related, because each of the two possible relationships is explored separately, and there is no attempt to take into account the preexisting levels of both variables. A better statistical test of a reciprocal relationship derives from estimating a panel model of simultaneous reciprocal relationships between delinquency and

family attachment. This specialized analysis is conducted with five semi-annual waves of data from the Rochester Youth Development Study, and with three annual waves of data from the Denver Youth Survey. Figures 8.1 to 8.4 depict the relationship between attachment and the two measures of delinquency. Appendix 8B presents a brief discussion of some of the more technical aspects of these models.

Figure 8.1, which examines attachment to parents and street crimes for Rochester, presents two types of effects -- stability effects represented by the horizontal arrows and cross-variable effects represented by the diagonal and vertical arrows. The stability effects indicate that each of these variables exerts a sizeable influence on itself over time. That is, adolescents who have low attachment to parents at one time are likely to have low attachment at the next time and adolescents who commit street crimes at one time are likely to commit street crimes at the next time. This simply reflects the general stability that is found in human behavior. Although stability effects are important, the cross-variable effects are more important for our purposes since they provide a test of reciprocal relationships between these variables. For that reason, our discussion here and in the other chapters that include panel models (Chapters 10 and 13) focuses on them.

Looking at Figure 8.1, Rochester data indicate that the effect of weak attachment to family on street delinquency occurs earlier on in the developmental sequence. This effect is significant only from Wave 1 to Wave 2, and the effect is not

Figure 8.1 Panel Model for Youth's Attachment to Parents and Delinquent Behavior, Rochester Youth Development Study.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 319.36 Degrees of Freedom = 24 Prob. < .001

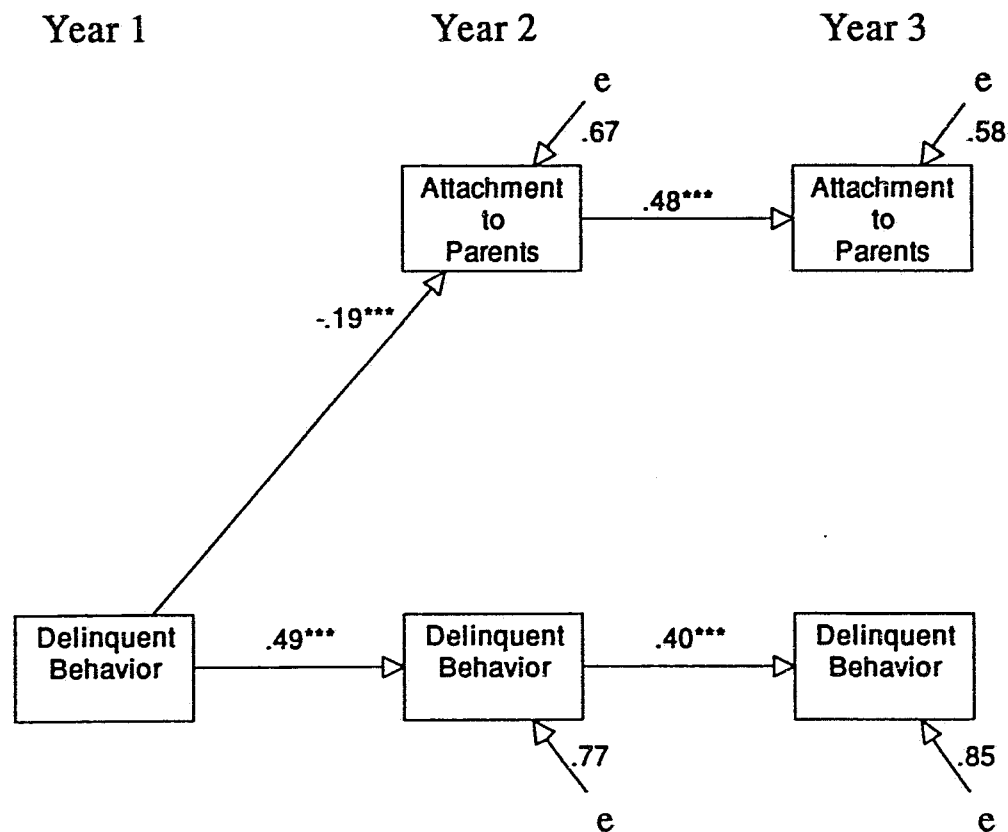
Bentler-Bonett NFI = .911

very strong. On the other hand, the impact of street delinquency on reducing attachment to family occurs later in the developmental sequence. This effect is evident at two points, in the instantaneous effect at Waves 3 and 4. Negative directions are predicted, and indicate that lower levels of attachment lead to higher rates of delinquency, and that higher levels of delinquency lead to lower levels of attachment.

Figure 8.2 indicates that for the Denver sample, street delinquency at Year 1 affects perceptions of family attachment at Year 2 but not subsequently. Weak family attachment, however, has no significant effect on subsequent street delinquency. Overall, therefore, the reciprocal relationship between attachment to parents and street delinquency appears to be rather weak and not particularly consistent over time.

The analysis presented in Figure 8.3 reports the reciprocal relationships between attachment to family and drug use for the Rochester sample. The picture is substantially similar to that presented above for street crimes in Rochester. That is, the relationship between attachment and delinquency is significant and negative between Waves 1 and 2, and the relationship between drug use and subsequent attachment is significant and negative at Wave 3. The Denver data suggest (Figure 8.4) that weak attachment and drug use are reciprocally related; drug use leads to weaker attachment in Year 2 and from Year 1 to Year 2. On the other hand, weak attachment at Year 2 leads to increased drug use during Year 3.

Figure 8.2 Panel Model for Youth's Attachment to Parents and Delinquent Behavior, Denver Youth Survey.

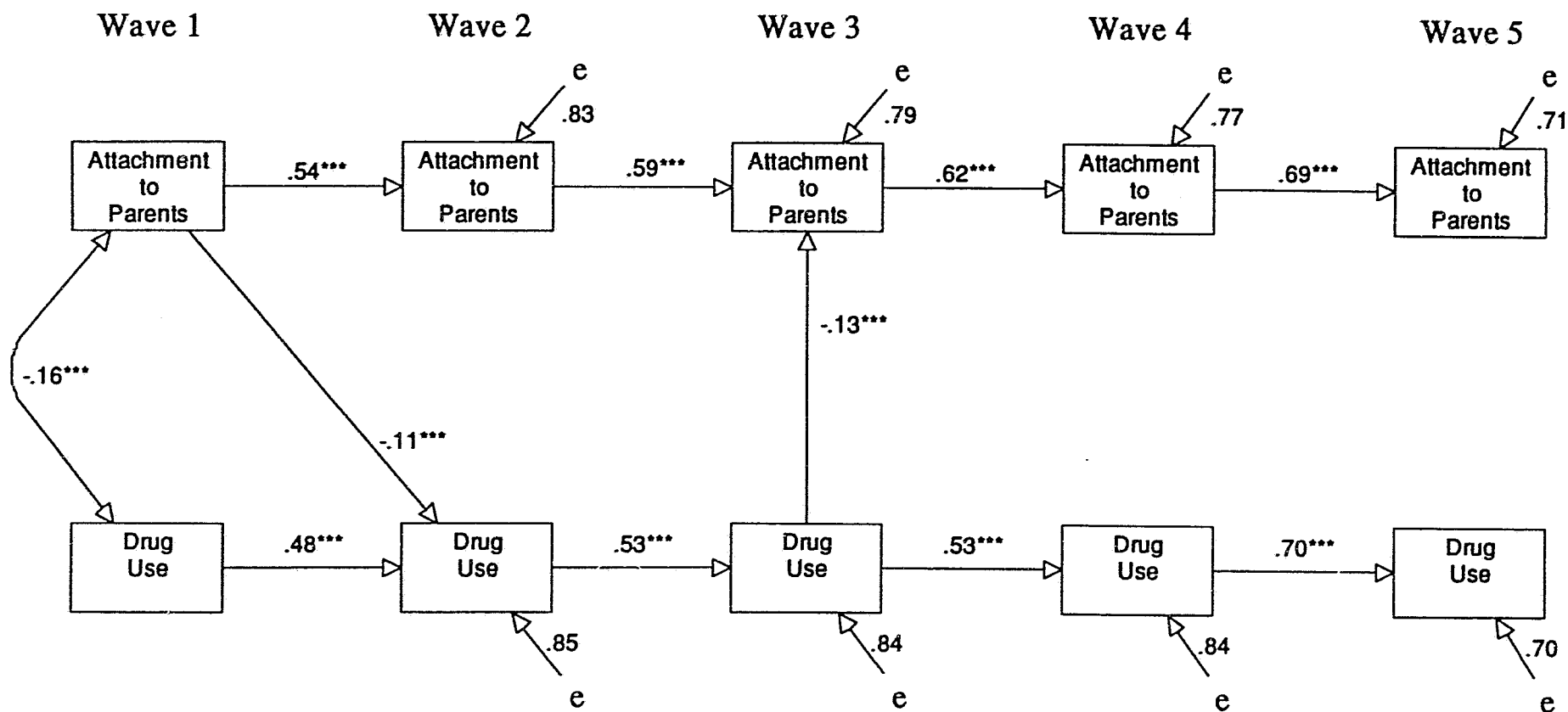


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square=14.79 Degrees of Freedom = 2 Prob. < .001

AGFI=.94

Figure 8.3 Panel Model for Youth's Attachment to Parents and Drug Use,
Rochester Youth Development Study.

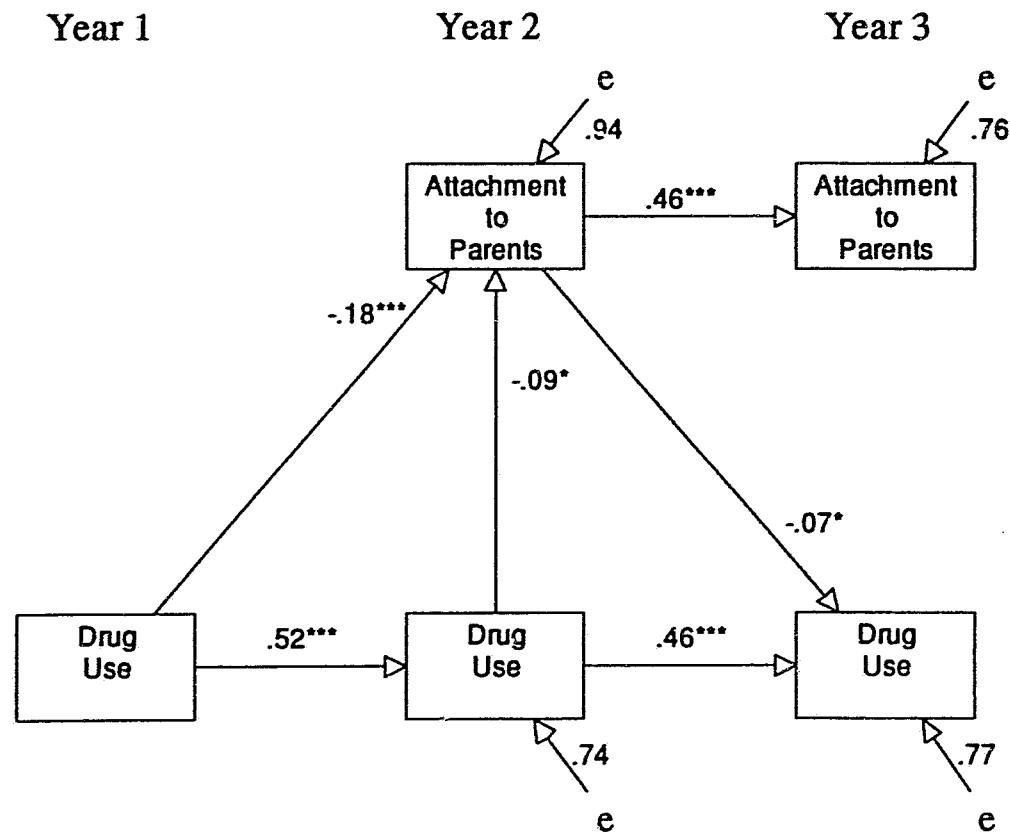


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 418.36 Degrees of Freedom = 24 Prob. < .001

Bentler-Bonett NFI = .901

Figure 8.4 Panel Model for Youth's Attachment to Parents and Drug Use, Denver Youth Survey.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square=14.79 Degrees of Freedom = 2 Prob. < .001

AGFI=.94

SUMMARY

In general, the panel analysis is consistent with other findings reported in this chapter. Overall, there is a somewhat greater relationship between earlier street delinquency and later attachment, than between attachment and subsequent street delinquency. There is a relationship between attachment to the family and drug use, which involves both the effect of weakened attachment on drug use, and of drug use on perceptions of family attachment. It appears, however, that the general relationship between attachment to parents and delinquency is not especially strong and is more aptly described as one of moderate magnitude.

POLICY IMPLICATIONS

1. While it is clear that family relationships are interwoven with delinquent conduct in adolescence, the importance of attachment to family for youth who engage in delinquency and drug use is not emphasized by these findings. It is thus not clear that family intervention would have a substantial impact on reducing delinquency and drug use, especially considered in addition to other countervailing forces such as delinquent peer involvement or school failure.

Despite the moderate importance that family attachment plays in delinquency, it is however likely to retain its importance as a site for intervention, not least because families are accessible and generally are motivated to care about outcomes for their children. There is thus some conflict between the criteria of effectiveness and accessibility in designing strategies which involve families. In view of this, and of the limited although

consistent importance of family attachment itself, family intervention with delinquents should consider the family as a conduit to other factors such as school, peer relationships and the control of the problem behavior itself. Case management approaches which seek to recruit families as important partners in a network of interrelated interventions would appear to be best supported by these findings.

2. Results suggest a modest, spiral effect of delinquency and attachment in which delinquency results from family alienation and itself contributes to further distancing, and thus detachment from the important resources families can provide. There are some indications that for certain subgroups, specific intervention into this spiral would have greater payoff. One example is drug-involved adolescent girls, for whom reductions in attachment seem to be a particularly important factor.

3. The focus of this chapter has been on delinquent outcomes of and influences on affective relationships between parents and children. Family intervention technologies are more often designed to affect parenting behavior than the more amorphous area of youth's perceptions of attachment. To the extent that family intervention strategies are to impact youth, it may be that improving the attachment of the youth to the parent is a possibly more significant target than parental behavior itself. Nevertheless, we have few effective strategies targeted specifically towards improving the emotional attachments that adolescents feel toward their parents. Greater priority needs to be given to their development.

4. An important implication of the finding that family attachment has only a moderate impact on delinquency is that the presence of significant family problems should not lead automatically to juvenile justice decisions to remove youth from troubled families. That is, if low family attachment is not likely to substantially increase delinquency and drug use, leaving a youth in even a troubled family is not likely to do great harm. In fact, to the extent that decreases in delinquency feed back to enhance family attachment, and improve subsequent behavior, keeping youth in a family environment while working on several fronts to reduce delinquency is likely to have greater payoff. Strategies to divert youth from court, and especially from incarceration alternatives are therefore suggested.

5. Finally, and in connection with the last point, we are unsure what role the family potentially plays in desistance from delinquent and criminal behavior. There is evidence from other studies that family connections are an important factor associated with post-release adjustment and reduced recidivism for those released from prison. Although this remains to be confirmed in further research, the importance of maintaining a continued family connectedness may in fact have a greater payoff in the long term than in the short term.

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CHAPTER 9
THE RELATIONSHIP BETWEEN FAMILY INTERACTION AND DELINQUENCY
AND SUBSTANCE USE

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INTRODUCTION

There is a voluminous literature on the ways that children are brought up and how childrearing is related to later delinquency (Geismar & Wood, 1986; Loeber & Stouthamer-Loeber, 1986). Typically, studies have examined various child rearing practices and family interaction patterns as they seemed to affect delinquency in offspring. Loeber and Stouthamer-Loeber (1986) described that at least four broad family domains are related to juvenile delinquency: neglect, conflict, deviant parent attitudes behaviors, and disruptors of family functioning. This chapter focuses on neglect and conflict.

NEGLECT

Children need to be socialized in order to learn and adopt prosocial behaviors. Neglecting parents run the risk that their children do not learn to speak the truth, and do not learn distinctions between mine and thine. Neglect can take on several forms, such as poor supervision of the child's activities outside

of the home (the parent does not know what the child does, with whom he/she hangs out, and where he/she is). In addition, parents' not having a fixed time for the child to return in the evening may reflect a laissez faire mode of interaction between the parent and the child. Finally, by parents not taking the trouble to communicate effectively with the child, the child is deprived of opportunities to test out ideas, evaluate future and past actions, and to absorb the parents' moral standards. Thus, parental neglect, as used here, refers to a continuum of neglectful behaviors, from minor to major neglect.

CONFLICT

Parent-child conflict is an ubiquitous feature in families with delinquent offspring (Patterson, 1982). The degree of this conflict varies from minor coercive interchanges to physical violence. Most of empirical studies on parent-child conflict did not attempt to measure the degree that parents' childrearing was affected by the problem behavior of the child, particularly when the problem behavior worsens when the child gets disciplined. Patterson (1982) described such escalation in conflict and pointed out that children's escalation in problem behavior often functions as a deterrent for parents to further pursue disciplining. Moreover, the seriousness of the child's escalation makes some caretakers apprehensive because of the unpleasant and unpredictable nature of the child's behaviors. Therefore, the caretaker may then back off and not force the child to comply. What the child learns from these interchanges

is that escalation works in that it stops the parents from enforcing the rules or applying some form of discipline.

Compared to studies on interactions in families with a delinquent child, the empirical literature on the relationship between family interaction and later juvenile substance use is less extensive (Hawkins, Catalano, & Miller, in press). Most of the available studies in either domain have been cross-sectional, most have been on males, and most have not examined the relationship between family interaction variables and delinquency and substance use as well. Also, few studies have compared the extent to which family interactions apply to elementary school-aged children and to adolescents.

Finally, there is a need to improve constructs, first by examining the extent to which a single informant compared to multiple informants augments the validity of a construct (e.g., the extent that parents' information about supervision of the child is augmented by children's information on parental supervision). Second, some phenomena, particularly of a social interactive kind, can be best captured by measuring the reciprocal interaction between different participants. Thus, instead of measuring how well a child gets along with his parent, one would also measure how well the parent gets along with the child. Although, each informant may have unique information, a construct based on both informants can be said to represent better the reciprocal process of how well parent and child get along.

This chapter consists of two parts. The first part consists of the relationship between family interaction variables and delinquency and substance use in each of the three studies. The second part of the chapter consists of more detailed analyses using information from the Pittsburgh site.

**PART 1: RELATIONSHIP BETWEEN FAMILY INTERACTION VARIABLES,
DELINQUENCY AND SUBSTANCE USE**

The following questions will be addressed in the first part of this chapter:

1) Is it true that the more neglectful and conflicting the family interactions the worse the degree of the juveniles' delinquency and substance use? Do these relationship hold for various ethnic groups and for each gender?

2) The same questions will be addressed pertaining to juveniles' substance use.

METHODS

For the following analyses similar sets of questions were extracted from the instruments used at the Denver, Pittsburgh, and Rochester sites (see Appendix 9B). On the basis of these instruments the following constructs were made (with the parent as the only informant):

Measures of Neglect

a) Parent involvement. This construct contains information from the parent about the degree that the parent has time to listen and talk to the child, and do things together.

b) **Parent-child communication about activities.** This construct concerns the parents' talking with the children about their activities. Examples of questions are: 'When was the last time that you discussed with your son/daughter his plans for the coming day?,' and 'in the previous six months, about how often have you talked with your son/daughter about what he had actually done during the day?'

c) **Amount of time parent spent with child.** This construct concerns the amount of time that the parent spent with the child during an average week.

d) **Set time home.** This construct is based on the parent's answers to three questions about whether there is a set time for the child to be home on school or weekend nights, and whether the parent would know if the child did not come home in time

e) **Supervision outside of the home.** This construct is based on the parent's report. An example for the parent is: 'Do you know who your son/daughter is with when he/she is away from home?'

Measures of Conflict

a) **Parent's avoidance of conflict.** This construct taps the degree that the parent hesitated or avoided enforcing the rules with the child because the parent was apprehensive that the actions would lead to an escalation in the child's misbehavior.

b) **Child's behavior worsens when disciplined.** This construct summarizes four items of the caretaker's report concerning whether the child's behavior became worse when

punished.

c) **Avoidance of discipline.** This construct addressed the degree to which the parent, when faced with the child's escalation in problem behavior during disciplining, persisted or not with a disciplinary action.

Four out of the seven measures were available from all three sites; measures of parent's involvement, parent-child communication, and amount of time parent spent with the child were not available from the Rochester site.

In order to examine the stability of the relationships between family interaction variables and delinquency/substance use across time, the analyses were repeated for Year 1 and for Year 2.

In contrast to analyses in other chapters, analyses of variance were preferred here because they will be more sensitive to differences between groups than will non-parametric tests such as chi-square.

FINDINGS FOR CHILDREN

Delinquency

Street crime by children was associated with several problems in the parent's child rearing practices (results are based on the Denver and Pittsburgh sites at one or two of the yearly assessments; the Rochester site did not include children). As shown in Table 9.1, children involved in street crime, compared to less or nondelinquent children, tended to have a parent who avoided applying discipline to the child. When

Table 9.1: Relationship between family interaction variables and delinquency for the child samples (in average scores).

	Denver			Pittsburgh		
	Street Crime	Other	P	Street Crime	Other	P
approx. N yr1 yr2	55 36	533 264		72 84	427 382	
Parent's avoidance of discipline	M&F yr1 15.13 M&F yr2 16.05	15.88 15.70	*	M yr1 7.64 M yr2 7.59	7.30 7.09	**
Child's behavior worsens when disciplined	M&F yr1 9.84 M&F yr2 10.84	10.58 10.52	**	M yr1 4.98 M yr2 4.95	4.73 4.62	**
Mother involvement	M&F yr1 13.26 M&F yr2 13.46	13.52 13.58		M yr1 6.53 M yr2 6.85	6.35 6.57	
Parent-child communication about activities	M&F yr1 7.46 M&F yr2 7.58	7.15 7.35		M yr1 2.81 M yr2 2.76	2.77 2.65	
Amount of time parent spent with child	M&F yr1 6.31 M&F yr2 6.21	6.35 5.96		M yr1 5.44 M yr2 5.00	5.40 5.09	
Set time home	M&F yr1 8.82 M&F yr2 8.74	8.71 8.76		M yr1 9.03 M yr2 8.78	9.07 8.68	
Supervision	M&F yr1 13.58 M&F yr2 13.84	13.62 13.97		M yr1 6.39 M yr2 6.38	6.07 5.98	*
Consistency of discipline	M&F yr1 13.92 M&F yr2 14.98	13.99 14.36		M yr1 9.79 M yr2 10.15	9.31 9.55	* **

M&F = Male and Female (Denver)
M = Male only (Pittsburgh)

disciplined the street crime children also reacted by showing worse behavior, which we think, served to discourage the parent from persisting in the disciplining. In addition, street crime children compared to less or nondelinquent children, at Pittsburgh were poorly supervised outside of the home by the parent, and received less consistent discipline from the parent.

When the data were broken down by ethnicity, the results showed uneven statistically significant findings (Tables A9.1 to A9.3 in Appendix 9B). A problem with these analyses was that the number of white and Hispanic children displaying street crime at the Denver site was small (lower than the cut-off we had established of 10), making it unwise to undertake analyses; but, at the Pittsburgh site, where the numbers were marginally larger, no statistical differences were detected. For the black subjects, the results were weakly replicated as reported for the full child sample in that children who engaged in street crime, compared to children with less or no crime, tended to behave worse when disciplined and have a parent who avoided disciplining. Parental lack of supervision and inconsistency of discipline, however, did not discriminate between the groups of children.

Results for each gender are presented in Tables A9.4 and A9.5 in Appendix 9A. The results for boys, largely replicated those mentioned for children in general. No significant differences were found for female children.

Substance use

Children's substance use was mostly confined to various forms of alcohol. Table 9.2 shows the relationship between children's alcohol use and family interaction variables. The results did not reach statistical significance at the p -value of less than .05, but some marginally significant findings were observed: particularly those children who used alcohol tended to be poorly supervised by the parent; also parental consistency of discipline was poorer for youth who drank alcohol, but this was observed at one site only. Findings broken down by ethnicity (Tables A9.6 to A9.8 in Appendix 9A) or gender did not produce significant differences (Tables A9.9 and A9.10 in Appendix 9A). Overall, whenever significant differences between groups were apparent, their magnitude was small.

FINDINGS FOR YOUTH

Delinquency

Table 9.3 shows the relationship between the family interaction variables and youth's street crime for subjects at Denver, Pittsburgh, and Rochester, at Years 1 and 2. Youth engaged in street crime, compared to those involved in less or no crime were significantly more poorly supervised, and their behavior tended to worsen when disciplined, findings which were replicated across the three sites, and replicated for Years 1 and 2. In addition, parents of youth engaged in street crime were more poorly involved with their boy than parents in the other group, and spent less time with the youth. The parents also

Table 9.2: Relationship between family interaction variables and substance use for the child samples (in average scores).

	Denver			Pittsburgh		
	Substance Use	No Use	P	Substance Use	No Use	P
approx. N yr1 yr2	49 28	546 276		99 99	400 367	
Parent's avoidance of discipline	M&F yr1 16.34 M&F yr2 16.05	15.76 15.72		M yr1 7.33 M yr2 7.16	7.36 7.19	
Child's behavior worsens when disciplined	M&F yr1 10.60 M&F yr2 10.93	10.50 10.53		M yr1 4.64 M yr2 4.65	4.80 4.69	
Mother involvement	M&F yr1 13.44 M&F yr2 13.56	13.49 13.57		M yr1 6.27 M yr2 6.66	6.40 6.61	
Parent-child communication about activities	M&F yr1 7.32 M&F yr2 7.39	7.17 7.37		M yr1 2.89 M yr2 2.68	2.75 2.66	
Amount of time parent spent with child	M&F yr1 6.06 M&F yr2 6.13	6.34 5.95		M yr1 5.37 M yr2 5.13	5.42 5.06	
Set time home	M&F yr1 8.83 M&F yr2 8.91	8.71 8.74		M yr1 9.18 M yr2 8.61	9.03 8.72	
Supervision	M&F yr1 14.04 M&F yr2 13.71	13.57 13.97		M yr1 6.36 M yr2 6.00	6.05 6.06	
Consistency of discipline	M&F yr1 14.61 M&F yr2 15.13	13.92 14.35	*	M yr1 9.22 M yr2 9.45	9.42 9.72	

M&F = Male and Female (Denver)

M = Male only (Pittsburgh)

Table 9.3: Relationship between family interaction variables and delinquency in the youth sample (in average scores).

	Denver			Pittsburgh			Rochester		
	Street Crime	Other	P	Street Crime	Other	P	Street Crime	Other	P
approx. N yr1 yr2	124 175	649 857		199 186	806 734		215 183	670 683	
Parent's avoidance of discipline	M&F yr1 15.24 M&F yr2 15.30	15.68 15.69	*	M yr1 7.57 M yr2 7.44	7.25 7.08	** **	M&F yr1 5.21 M&F yr2 5.22	5.09 5.36	
Child's behavior worsens when disciplined	M&F yr1 9.90 M&F yr2 9.97	10.38 10.45	** ***	M yr1 5.17 M yr2 4.92	4.72 4.57	*** ***	M&F yr1 3.95 M&F yr2 3.96	3.71 3.80	** *
Mother involvement	M&F yr1 12.94 M&F yr2 12.85	13.37 13.29	** **	M yr1 7.01 M yr2 7.19	6.62 6.80	** **	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Parent-child communication about activities	M&F yr1 6.80 M&F yr2 6.83	6.88 7.12	**	M yr1 3.15 M yr2 2.97	2.86 2.79	**	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Amount of time parent spent with child	M&F yr1 5.58 M&F yr2 5.53	5.91 5.89	*	M yr1 6.07 M yr2 6.02	5.57 5.60	*** **	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Set time home	M&F yr1 8.43 M&F yr2 8.57	8.58 8.58		M yr1 8.90 M yr2 8.39	8.97 8.40		M&F yr1 3.25 M&F yr2 3.25	3.39 3.43	*
Supervision	M&F yr1 13.22 M&F yr2 13.45	13.60 13.85	* **	M yr1 6.65 M yr2 6.70	5.95 5.99	*** ***	M&F yr1 8.46 M&F yr2 8.16	8.64 8.53	** ***
Consistency of discipline	M&F yr1 13.37 M&F yr2 13.98	13.91 14.12	*	M yr1 9.53 M yr2 9.99	9.27 9.60	*	M&F yr1 8.53 M&F yr2 8.86	8.95 8.89	**

M&F = Male and Female (Denver and Rochester)

M = Male only (Pittsburgh)

--- = Variable not available

avoided disciplining the street crime youth. Having less a set time to be home distinguished youth engaged in street crime from the other youth, but this finding was less consistent across sites. The same applied to parent-child communications about the child's activities.

Comparing the youth findings with those for the children, the results on street crime by youth show a greater variety of negative family interactions, particularly a greater lack of involvement of the parent and shorter amount of time she spent with the child.

Table A9.11 shows the findings on white youth. Findings reported for the general sample were replicated here, but sometimes more marginally and more for Year 1 than for Year 2. In comparison, for blacks the results were stronger and more consistent over time than those for the white samples, particularly for the Pittsburgh site (Table A9.11 and A9.12 in Appendix 9A). Poor supervision by the parent was one of the strongest discriminating variables between black youth engaged in street crime compared to black youth in the other group. Also, confirmed across the three sites was the child's behavior worsening when disciplined in the street crime group. Other than these effects, however, replication across the sites was less complete than in the general sample. Turning to Hispanic youth (Table A9.13 in Appendix 9A), the data from the Denver and Rochester sites show that lack of parent involvement was more typical of the Hispanic youth engaged in street crime than those

involved in less serious or no crime (both in Years 1 and 2), while parent's lack of supervision remained a distinguishing characteristic as well.

Are family interaction variables equally important for males and females? Tables A9.14 and A9.15 (Appendix 9A) show the results for males and females, respectively. Most of the replicated findings for males were limited to the Denver and Pittsburgh sites, showing that males involved with street crime scored higher than males in the other group on the following variables: child's behavior worsens when disciplined, parent's lack of involvement, lack of supervision, and to a less replicated extent, parent-child communication about activities, and amount of time parent spent with child. In contrast, the results for females showed far fewer significant distinctions on family interaction variables between those engaged in street crime and their controls. Therefore, the familial factors that may explain delinquency in girls are not clarified by these analyses.

Overall, in many instances, where significant differences between groups were reported for either of the three sites, these differences were often small, representing a modest effect size.

Substance Use

The next set of analyses concerns substance use, which was broken down by alcohol use and drug use.

Alcohol Use

Table 9.4 shows the relationship between family interaction

Table 9.4: Relationship between family interaction variables and alcohol use for the youth samples (in average scores).

	Denver			Pittsburgh			Rochester		
	Alcohol Use	No Use	P	Alcohol Use	No Use	P	Alcohol Use	No Use	P
approx. N yr1 yr2	262 289	513 752		432 320	574 599		272 316	613 541	
Parent's avoidance of discipline	M&F yr1 15.81 M&F yr2 15.44	15.50 15.66		M yr1 7.29 M yr2 7.19	7.33 7.13		M&F yr1 5.29 M&F yr2 5.24	5.04 5.03	** *
Child's behavior worsens when disciplined	M&F yr1 10.33 M&F yr2 10.20	10.30 10.42		M yr1 4.81 M yr2 4.74	4.81 4.59	*	M&F yr1 3.91 M&F yr2 3.85	3.70 3.67	** *
Mother involvement	M&F yr1 13.18 M&F yr2 12.87	13.37 13.34	***	M yr1 6.87 M yr2 7.01	6.56 6.81	**	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Parent-child communication about activities	M&F yr1 6.70 M&F yr2 6.84	6.94 7.16	* ***	M yr1 2.99 M yr2 2.92	2.87 2.78		M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Amount of time parent spent with child	M&F yr1 5.53 M&F yr2 5.50	6.03 5.95	** **	M yr1 5.71 M yr2 5.93	5.64 5.55	**	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Set time home	M&F yr1 8.48 M&F yr2 8.40	8.59 8.65	***	M yr1 8.87 M yr2 8.33	9.03 8.43		M&F yr1 3.30 M&F yr2 3.25	3.38 3.41	 *
Supervision	M&F yr1 13.40 M&F yr2 13.59	13.61 13.85	* *	M yr1 6.25 M yr2 6.37	5.98 6.01	** ***	M&F yr1 8.56 M&F yr2 8.53	8.61 8.62	
Consistency of discipline	M&F yr1 13.67 M&F yr2 13.82	13.90 14.19	* *	M yr1 9.44 M yr2 9.68	9.24 9.69		M&F yr1 8.51 M&F yr2 8.66	9.00 9.03	*** **

M&F = Male and Female (Denver and Rochester)

M = Male only (Pittsburgh)

--- = Variable not available

variables and alcohol use for the full samples. The results show several relationships, but these were not consistently replicated either on each of the samples or across time. This also applied to alcohol use for white youth and black youth (Tables A9.16 and A9.17 in Appendix 9A). The results for Hispanics (Table A9.18), although showing more significant relationships, and revealed a higher consistency across the Denver and Rochester sites, but usually at one of the two years only. Alcohol using Hispanic youth, compared to nonusing youth, had parents who avoided disciplining, did not set a time for the youth to be home, and were inconsistent with disciplining. Additionally, measures at the Denver site only, showed that these parents were less involved, spent less time with the child, and communicated less with their child about the child's activities.

The results for each gender are shown in Tables A9.19 and A9.20 (Appendix 9A). The relationship between family interaction variables and boys' substance use showed some indication that alcohol using boys were more neglected by their parent than abstaining boys, with the parent spending less time with the child, not setting a time for the boy to be home, and exercising poorer supervision about the child whereabouts and activities outside of the home. Results for the girls at the Denver and Rochester sites (Table A9.20) indicated more significant effects, replicating most of the findings for boys. In addition, girls who used alcohol, compared to those who abstained, showed worsening behaviors when disciplined, and were exposed to

inconsistent disciplining by parents.

Drug Use

The same set of family interaction variables was examined in order to explain drug use by youth. Table 9.5 shows the results for the full samples at each site, which are not as consistent as those in the tables on delinquency for the full sample. Two out of the three sites replicated findings showing that those youth who used drugs had less often a set time to be home and were less supervised compared to nondrug using youth. However, comparisons were problematic for white youth (Tables A9.21 to A9.23 in Appendix 9A) partly because of the low number of subjects using drugs. White youth's drug use was associated with poorer supervision by the parent and by more inconsistency of discipline than for nondrug using youth. In comparison, the results for black youth were more consistent for two out of the three sites showed that drug using black youth were more poorly supervised and had less frequently a set time to be home than nondrug using black youth. Results for Hispanics available from the Denver and Rochester sites were only statistically significant at the Rochester site, but not consistently across years.

When the data were broken down by gender, the results for males again were uneven across the sites, with the exception that supervision by the parent was poorer for drug using males at the Pittsburgh and Rochester sites (Tables A9.24 and A9.25 in Appendix 9A). The results for females showed more significant results at the Denver site, with parents of drug using females

Table 9.5: Relationship between family interaction variables and drug use for the youth samples (in average scores).

	Denver			Pittsburgh			Rochester		
	Drug Use	No Use	P	Drug Use	No Use	P	Drug Use	No Use	P
approx. N yr1 yr2	104 91	640 876		40 43	966 877		121 140	761 725	
Parent's avoidance of discipline	M&F yr1 15.45 M&F yr2 14.84	15.67 15.72	***	M yr1 7.48 M yr2 7.29	7.31 7.14		M&F yr1 5.38 M&F yr2 5.41	5.07 5.32	*
Child's behavior worsens when disciplined	M&F yr1 10.15 M&F yr2 10.01	10.34 10.44	*	M yr1 5.13 M yr2 4.83	4.79 4.63		M&F yr1 3.94 M&F yr2 4.00	3.74 3.81	*
Mother involvement	M&F yr1 12.94 M&F yr2 12.68	13.40 13.29	** ***	M yr1 6.90 M yr2 7.15	6.68 6.86		M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Parent-child communication about activities	M&F yr1 6.95 M&F yr2 6.84	6.86 7.11	*	M yr1 3.20 M yr2 3.26	2.91 2.81	*	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Amount of time parent spent with child	M&F yr1 5.28 M&F yr2 5.65	5.98 5.85	**	M yr1 5.90 M yr2 6.51	5.66 5.64	**	M&F yr1 --- M&F yr2 ---	--- ---	--- ---
Set time home	M&F yr1 8.51 M&F yr2 8.53	8.59 8.59		M yr1 9.21 M yr2 7.75	8.95 8.43	**	M&F yr1 3.51 M&F yr2 3.25	3.33 3.42	* *
Supervision	M&F yr1 13.45 M&F yr2 13.71	13.59 13.81		M yr1 6.87 M yr2 6.80	6.06 6.10	*** **	M&F yr1 8.44 M&F yr2 8.21	8.63 8.50	* **
Consistency of discipline	M&F yr1 13.55 M&F yr2 13.64	13.93 14.17	*	M yr1 9.86 M yr2 9.93	9.30 9.67		M&F yr1 8.44 M&F yr2 8.65	8.91 8.93	*

M&F = Male and Female (Denver and Rochester)

M = Male only (Pittsburgh)

--- = Variable not available

showing more avoidance of discipline, and less involvement by parents, results which were replicated at Years 1 and 2.

Summary and Comment

The clearest results were obtained for the full samples at each site, compared to subsamples based on gender or ethnicity. For the full sample, delinquency in children was mostly related to family conflict, as expressed by parental avoidance of disciplining and the child's behavior worsening when disciplined. These results were confirmed for the older youth. In addition, for adolescents, various forms of parental neglect were also higher among those involved in street crime as compared to those involved in lesser or no crime. Of the various forms of parental neglect, the following stood out: poor supervision, little involvement with the youth, spending little time with the youth and, to a lesser extent, having no set time for the youth to be home.

The results on substance use, paralleled those found on delinquency, but only as far as parental neglect and not as far as family conflict. Youth involved with drugs, compared to nondrug users, were poorly supervised, were less likely to have a set time to be home. For the children using substances (mostly alcohol), lack of supervision tended to be the most distinguishing family characteristic.

Both for the children and the youth in the three studies, the strength of the relationships between family interaction variables and delinquency (and also substance use) tended to be

weak and, therefore, must be interpreted with caution..

PART II: FURTHER RELATIONSHIPS BETWEEN FAMILY INTERACTION
VARIABLES AND DELINQUENCY IN THE PITTSBURGH YOUTH STUDY

There were several reasons why we wanted to further explore the relationship between family interaction variables and delinquency in the Pittsburgh Youth Study. First, the observed relationships were often weak and inconsistent across the three sites. Therefore, in the next set of analyses, a larger number of questions per construct was used available from the Pittsburgh site, based on information from the mother and the youngster. We wanted to examine whether mothers' information together with the boy's information about child rearing practices explained delinquency better than either source alone. Second, we wanted to explore whether a measure of delinquency seriousness, specifically made for the Pittsburgh Youth Study, had a higher predictive utility than that used across the three sites. In addition, we wanted to include some other family interaction measures not part of the cross-site analyses.

Since in a small percentage of cases, a variety of caretakers other than the mothers responded to the family interaction measures, a decision was made to limit the following analyses to mothers only. This had the advantage of ensuring that stability analyses over time referred to the same adult respondent. The following questions are addressed in the second part of the chapter, which focuses on delinquency:

1) How well did boys' compared to mothers' reports of family interaction correlate with the boys' delinquency, and was a combined construct based on boys' and mothers' reports better in this respect than constructs based on a single informant?

2) How stable were family interaction measures across time?

3) How well did combined constructs of family interaction predict later delinquency?

4) How well did the boys' delinquency predict family interaction constructs over time?

5) Do changes in family interaction predict changes in delinquency, and vice versa?

METHOD

Subjects were boys from the youngest, middle, and oldest samples in the Pittsburgh Youth Study (see Chapter 2 for details).

Measures of Neglect

The following measures of neglect were used in the analyses:

Parental Supervision. This construct has been described in Part 1 of this paper, but this version incorporated the boy's information as well. (This construct does not distinguish between mothers and fathers) (Cronbach's $\alpha(Y) = .56$; $\alpha(M) = .62$; $\alpha(O) = .67$, where Y = the youngest sample; M = middle sample; O = oldest sample).

Mother-child Communication. This construct combines 4 questions from the mother and 5 questions from the boy, scored on a 4-point scale from More than a month ago, to Yesterday/today,

about the mother's talking with the boys about his activities. Examples of questions are: 'When was the last time that you discussed with your son his plans for the coming day?,' and 'in the previous six months, about how often have you talked with your son about what he had actually done during the day?' ($\alpha(Y) = .78$; $\alpha(M) = .83$; $\alpha(O) = .87$).

Mother-child Relationship. This construct consists of 16 items of the mother's report on her relationship with the boy, and 13 items tapping how often the boy perceived the relationship to his mother in positive or negative terms (called attachment in Chapter 8, where the construct was measured by fewer questions). Examples of questions for the mother are: 'How often have you thought your child was a good child?,' and 'How often have you wished he would just leave you alone?' Examples for the boys are 'How often have you liked being your mother's child?' and 'How often have you thought your mother really bugged you a lot?' For most of the following analyses, the mother's information and that of the youngster was merged to form a new construct indicative of their mutual or reciprocal relationship, called mother-child relationship ($\alpha(Y) = .73$; $\alpha(M) = .78$; $\alpha(O) = .84$).

Measures of Conflict

Physical Punishment. This is a combined mother and child construct tapping whether or not the mother slaps or spansks the boy with something (2 questions).

Mother's Persistence in Disciplining. This construct has been described in Part I of this paper, but in this version

incorporates the boy's information as well ($\alpha(Y) = .78$; $\alpha(M) = .78$; $\alpha(O) = .81$).

Because of limitations in measurements due to the young age of the children in the youngest sample, measures of the mother's inconsistent discipline and poor communication were derived from parent information only.

For most of the following analyses, the measures of family interaction were dichotomized at or close to the upper 75th percentile to identify the worst group.

Measure of Delinquency Seriousness

The delinquency classification places a boy in the category of the most serious behavior ever committed. The information is derived from the caretaker (Child Behavior Checklist, Lifetime Scale), teacher (Teacher Report Form), and from the boy himself (Self-reported Antisocial Behavior, for the youngest sample, and Self-reported Delinquency and the Youth Report Form for the oldest sample) at Screening and at Follow-up. In order to classify delinquent behaviors according to seriousness, the severity ratings developed by Wolfgang, Figlio, Tracy, and Singer (1985) were used. Each behavior was represented by one or more questions and one or more respondents. The constructs were made first from the Screening and Follow-up data separately, and then combined to form the final construct. Level 1 consisted of no delinquency or minor delinquency committed at home, such as stealing minor amounts of money from one's parent's purse or minor vandalism at home, Level 2 consisted of minor delinquency

outside of the home, including minor forms of theft such as shoplifting and stealing something worth less than \$5, and vandalism and minor fraud, such as not paying for a bus ride.

Level 3 consisted of moderately serious delinquency such as any theft over \$5, gang fighting, carrying weapons, and joyriding.

Level 4, the category of serious delinquency, comprised behaviors such as car theft, breaking and entering, strongarming, attacking to seriously hurt or kill, forced sex and selling drugs.

One of the advantages of this classification scheme was that it combined information from several informants, so that a "best estimate" could be established of a boy's delinquent involvement. Another advantage was that the classification scheme allowed the placement of subjects on a delinquency seriousness scale irrespective of age; thus, boys from the youngest and the older samples could be scaled on the same scale. For certain analyses that follow, the scale was modified when yearly delinquency assessments were needed, which combined the two 6-months assessments in a given year.

RESULTS

COMPARISON BETWEEN FAMILY INTERACTION BASED ON INFORMATION FROM BOYS AND MOTHERS

The first question examines the extent to which information from the mothers augments or not the information from the boy on the same family interaction variables. Tables 9.6 to 9.8 show the results at wave A (Year 1) for each of the three samples

(youngest, middle, and oldest).¹ Parents' report on these variables were significantly associated with boys' seriousness of delinquency in 10 out of the 15 comparisons (Table 9.6). In contrast, child's information about the same variables produced 8 significant results, with p-values which were lower than those based on the mother information (compare Tables 9.6 and 9.7). When information from the mother and the child was combined (Table 9.8), the results improved over and above those based on a single informant. Using the combined information, family interaction variables were significantly associated with boys' delinquency seriousness in 10 out of the 13 valid comparisons. Also, using a criterion of at least 4 points change, the magnitude of the chi-squares (not shown in Table 9.8), while decreasing in 1 comparison, improved in 7 comparisons over the chi-squares for mother information only. Thus, aggregating the boys' and the mothers' information on family interaction variables improved the association between these variables and boys' seriousness of delinquency. The results were replicated for similar comparisons at waves C (Year 2) and E (Year 3) (not shown here).

STABILITY OF FAMILY INTERACTION OVER TIME

The next step was to establish the extent that family interactional variables were stable over time. Tables 9.9 to

¹ Comparisons between mothers' and child's information for the youngest boys were not possible on two variables (mother's persistence in disciplining and poor communication), because the information on these was obtained from the parent only.

Table 9.6 Family interaction Variables, as Reported by Mother, Related to Delinquency Seriousness Classification (%)

Phase A

Variable	Sample	No or Minor	Other Minor	Moderate	Serious	p
Poor Supervision	Y	27.4	37.9	47.9	33.3	**
	M	20.6	29.3	34.4	38.4	**
	O	10.2	25.0	24.5	26.4	***
Poor Mother/Child Relationship	Y	19.3	37.3	35.2	37.2	***
	M	16.5	30.0	22.4	50.7	***
	O	13.9	21.7	30.2	32.2	***
Inconsistent Discipline	Y	19.1	25.4	29.4	17.7	
	M	22.0	25.5	26.3	21.1	
	O	20.2	24.1	31.7	23.1	
Poor Mother/Child Communication	Y	17.7	35.7	33.3	33.3	***
	M	17.8	34.4	28.2	38.4	***
	O	20.2	21.0	31.1	35.2	*
Physical Punishment	Y	68.7	76.1	71.9	92.2	
	M	46.6	66.7	58.2	72.9	***
	O	40.7	42.3	34.4	44.5	

* = $p < .05$

** = $p < .01$

*** = $p < .001$

Table 9.7 Family interaction Variables, as Reported by Child, Related to Delinquency Seriousness Classification (%)

Phase A

Variable	Sample	No or Minor	Other Minor	Moderate	Serious	p
Poor Supervision	Y	27.4	33.7	33.1	39.0	
	M	23.1	22.2	21.8	22.4	
	O	20.7	34.2	35.1	43.0	***
Poor Mother/Child Relationship	Y	22.7	30.1	34.2	31.9	
	M	18.1	19.7	33.1	27.7	*
	O	17.9	20.9	31.6	26.9	*
Inconsistent Discipline	Y	n/a	n/a	n/a	n/a	
	M	21.7	26.4	36.1	32.6	
	O	9.7	20.1	16.3	28.6	**
Poor Mother/Child Communication	Y	n/a	n/a	n/a	n/a	
	M	20.6	25.6	36.2	32.8	*
	O	14.9	24.8	27.7	32.6	**
Physical Punishment	Y	63.1	65.8	77.0	92.2	*
	M	43.8	60.7	50.9	52.6	*
	O	22.4	33.5	29.0	34.5	

* = $p < .05$ ** = $p < .01$ *** = $p < .001$

Table 9.8 Family interaction Variables, as Reported by Mother and Child Combined, Related to Delinquency Seriousness Classification (%)

Phase A

Variable	Sample	No or Minor	Other Minor	Moderate	Serious	p
Poor Supervision	Y	19.8	27.1	34.5	38.0	*
	M	22.7	32.1	26.8	33.5	
	O	13.6	20.7	35.8	33.5	***
Poor Mother/Child Relationship	Y	16.3	35.8	34.0	44.6	***
	M	13.8	31.0	32.4	43.7	***
	O	13.4	21.9	35.2	29.0	***
Inconsistent Discipline	Y	n/a	n/a	n/a	n/a	
	M	24.2	25.0	34.2	28.2	
	O	10.2	20.8	24.9	26.7	***
Poor Mother/Child Communication	Y	n/a	n/a	n/a	n/a	
	M	15.0	29.5	26.2	41.2	***
	O	16.5	20.8	32.8	35.9	***
Physical Punishment	Y	13.5	24.8	21.9	38.3	**
	M	29.0	43.1	34.4	51.3	**
	O	15.0	24.2	19.5	21.9	

* = $p < .05$

** = $p < .01$

*** = $p < .001$

9.11 summarize this information for the three respective samples. In all instances the correlations were statistically significant for either the Year 1-Year 2, Year 2-Year 3, or the Year 1-Year 3 comparisons. For example, in the oldest sample the stability coefficients for the mother-child relationship, mother-child communication, and parental supervision were .56-.60 over a three year interval, while stability coefficients for physical punishment and persistence of discipline were lower (.37-.38). As expected, in each of the three samples, correlations decreased slightly the longer the span of time between assessments.

If we compare the three age samples, two trends are apparent. First, on average the stability coefficients increased with age, with an average of .40 for the youngest sample, and .51 and .55, respectively, for the middle and the oldest samples. Thus, family interactions tended to become more predictable with the child's age. Second, there is a clear indication that some family interaction variables mostly increased in stability between the youngest and middle samples (e.g., physical punishment), while other variables mostly increased in stability from the middle to the oldest samples (e.g., persistence of discipline, and parental supervision).

FAMILY INTERACTION AS A PREDICTOR OF DELINQUENCY

The next question is to what extent does poor family interaction predict later delinquency? Tables 9.12 to 9.14 show the results for the three samples, respectively. For the youngest sample, poor supervision and poor communication

Table 9.9 Stability Coefficients of Family Interaction Variables
At Years 1, 2, and 3.

Youngest Sample

Variable	Correlation		
	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
Mother/Child Relationship	.48**	.61**	.48**
Mother/Child Communication ^a	.52**	.56**	.54**
Physical Punishment	.22**	.36**	.23**
Mother's Persistence in Discipline ^a	.29**	.38**	.24**
Parental Supervision	.38**	.46**	.26**

* = $P < .01$ ** = $P < .001$

^a Information from parent only

Table 9.10 Stability Coefficients of Family Interaction Variables
At Years 1, 2, and 3.

Middle Sample

Variable	Correlation		
	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3

Mother/Child Relationship	.49**	.64**	.51**
Mother/Child Communication	.62**	.70**	.52**
Physical Punishment	.45**	.55**	.37**
Mother's Persistence in Discipline	.45**	.61**	.47**
Parental Supervision	.42**	.54**	.33**

* = P < .01

** = P < .001

Table 9.11 Stability Coefficients of Family Interaction Variables
At Years 1, 2, and 3.

Oldest Sample

Variable	Correlation		
	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
Mother/Child Relationship	.65**	.62**	.58**
Mother/Child Communication	.67**	.69**	.60**
Physical Punishment	.42**	.42**	.37**
Mother's persistence in Discipline	.44**	.55**	.38**
Parental Supervision	.60**	.65**	.56**

* = P < .01

** = P < .001

predicted delinquency over a one year and a two-year periods. The likelihood of serious delinquency occurring at follow-up, given earlier poor supervision, was about twice as high as could be expected from chance alone (e.g. observed 11.8 percent compared with 6.6 percent expected by chance).

The results on poor supervision were replicated for the middle sample and oldest sample, indicating that poor supervision predicted delinquency for all age groups, even over three years (the latter in two out of the three samples). The results for poor communication were consistently replicated in the youngest and middle samples, but less so in the oldest sample.

Poor relationship with the mother predicted later delinquency in the middle and oldest samples only (significant results in 5 out of the 6 comparisons). For example, poor relationship with mother in Year 1 for the older boys predicted serious delinquency in Year 3 about twice as well as could be expected by chance. Finally, persistence of discipline and physical punishment were less consistent significant predictors of delinquency.

In summary, family interaction variables tended to predict delinquency best for the middle sample (10 significant findings out of 15), second best for the oldest sample (7 significant findings), and least for the youngest sample (4 significant findings). Also comparisons between observed and expected values showed that the relationships held most for serious forms of delinquency, but only weakly and less for moderately serious or

Table 9.12 Family Interaction Variables as Predictors of Delinquency Seriousness Classification in Youngest Sample (%)

Variable	Year 1-Year 2			Year 2-Year 3			Year 1-Year 3		
	Delinquency			Delinquency			Delinquency		
	Serious	Moderately Serious	p	Serious	Moderately Serious	p	Serious	Moderately Serious	p
Poorly Supervised	7.7 (4.0)	11.1 (9.7)	**	6.9 (6.8)	13.3 (9.7)		11.8 (6.6)	12.2 (9.0)	**
Poor Relationship With Mother	5.0 (3.9)	13.2 (10.2)		8.3 (6.7)	15.1 (9.9)		6.2 (6.6)	12.4 (9.6)	
Poor Communication With Mother ^a	7.1 (3.6)	17.3 (10.1)	***	12.5 (6.7)	16.6 (9.9)		12.6 (6.7)	16.5 (9.9)	***
Inconsistent Discipline ^a	1.7 (3.8)	9.8 (10.1)		10.1 (6.7)	8.5 (9.9)		5.1 (6.7)	5.5 (9.9)	
Physical Punishment	5.1 (3.8)	13.3 (10.1)		6.6 (6.6)	11.5 (9.9)		10.8 (6.7)	12.3 (9.9)	

* = $p < .05$ ** = $p < .01$ *** = $p < .001$

^a Information from parent only; expected values in parentheses

Table 9.13 Family Interaction Variables as Predictors of Delinquency Seriousness
Classification in Middle Sample (%)

Variable	Year 1-Year 2			Year 2-Year 3			Year 1-Year 3		
	Delinquency			Delinquency			Delinquency		
	Serious	Moderately Serious	p	Serious	Moderately Serious	p	Serious	Moderately Serious	p
Poorly Supervised	13.1 (9.6)	15.5 (12.9)	**	18.0 (11.5)	22.6 (13.3)	***	15.0 (11.6)	19.1 (13.4)	
Poor Relationship With Mother	19.2 (9.7)	19.0 (12.8)	***	25.6 (11.4)	22.0 (13.3)	***	17.7 (11.4)	18.4 (13.5)	**
Inconsistent Discipline	6.3 (9.8)	17.2 (12.8)		15.2 (11.5)	18.2 (13.1)	**	14.4 (11.4)	15.0 (13.5)	
Poor Communication With Mother	18.8 (9.7)	12.0 (12.8)	**	17.2 (11.4)	22.8 (13.2)	***	18.1 (11.4)	23.9 (13.5)	***
Physical Punishment	14.3 (9.9)	16.1 (12.8)	*	15.7 (11.4)	16.4 (13.2)		14.0 (11.5)	15.3 (13.5)	

* = $p < .05$ ** = $p < .01$ *** = $p < .001$

Expected values in parentheses

Table 9.14 Family Interaction Variables as Predictors of Delinquency Seriousness
Classification in Oldest Sample (%)

Variable	Year 1-Year 2			Year 2-Year 3			Year 1-Year 3		
	Delinquency			Delinquency			Delinquency		
	Serious	Moderately Serious	p	Serious	Moderately Serious	p	Serious	Moderately Serious	p
Poorly Supervised	16.4 (7.0)	22.9 (22.1)	**	27.0 (13.8)	23.7 (18.2)	***	26.2 (13.9)	21.6 (18.8)	**
Poor Relationship With Mother	11.3 (7.2)	27.9 (21.9)	*	16.2 (13.9)	21.7 (18.4)		22.4 (14.1)	23.4 (18.7)	*
Inconsistent Discipline	12.8 (7.2)	27.0 (21.9)	**	18.2 (13.8)	22.2 (18.5)		20.2 (14.2)	20.3 (18.6)	
Poor Communication With Mother	10.7 (7.4)	25.7 (21.8)		20.7 (13.9)	21.5 (18.3)	*	21.9 (14.1)	21.3 (18.5)	
Physical Punishment	6.2 (7.1)	20.6 (22.0)		16.0 (13.8)	17.9 (18.2)		13.2 (14.2)	17.8 (18.7)	

* = $p < .05$ ** = $p < .01$ *** = $p < .001$

Expected values in parentheses

minor forms of delinquency (latter not shown in Tables 9.12 to 9.14).

DELINQUENCY AS A PREDICTOR OF FAMILY INTERACTION

There is no doubt that family interaction and delinquency are sometimes reciprocally intertwined (see also Chapter 8). Therefore, given that poor family interaction predicts delinquency, the question needs to be raised to what extent does delinquency predict poor family interaction? The results are shown in Tables 9.15 to 9.17 for the three respective samples. Delinquency predicted poor supervision in 7 out of the 9 comparisons across the three samples. For example, for the youngest boys, two thirds (64.3 percent) of the serious delinquents at Time 2 were poorly supervised at Time 3, which was twice as high as could be expected by chance. The effect was slightly smaller, but in the same direction, for those who were engaged in moderately serious delinquency at Time 2.

Serious delinquency also predicted poor relationship with mother in all three samples (7 significant findings out of a possible 9). For example, a third (37.8 percent) of the moderately serious delinquents in the middle sample at Year 1 had a poor relationship with their mother two years later. Delinquency almost consistently predicted poor communication in all three samples (8 significant findings out of a possible 9).

Interestingly, delinquency did not predict later physical punishment (only one significant finding out of nine), while persistence of discipline was only significantly predicted by

Table 9.15 Delinquency Seriousness Classification as a Predictor of Family Interaction in Youngest Sample (%)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poorly Supervised	Poorly Supervised	Poorly Supervised
Delinquency			
Moderately Serious	27.1 (21.4)	41.4 (27.8)	40.1 (27.6)
Serious	34.1 (21.4)	64.3 (27.8)	40.4 (27.6)
p		***	*
Variable	Poor Relationship With Mother	Poor Relationship With Mother	Poor Relationship With Mother
Moderately Serious	42.2 (22.9)	36.0 (23.0)	30.3 (23.1)
Serious	21.2 (22.9)	45.2 (23.0)	31.9 (23.1)
p	**	**	
Variable	Inconsistent Discipline ^a	Inconsistent Discipline ^a	Inconsistent Discipline ^a
Moderately Serious	37.0 (28.9)	29.6 (25.4)	31.8 (25.4)
Serious	29.8 (28.9)	42.9 (25.4)	29.8 (25.4)
p			*

* = $p < .05$

* = $p < .01$

*** = $p < .001$

^a Information from parent only; expected values in parentheses

Table 9.15 (Continued)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poor Communication With Mother ^a	Poor Communication With Mother ^a	Poor Communication With Mother ^a
Delinquency			
Moderately Serious	39.2 (24.6)	39.6 (24.6)	28.8 (24.6)
Serious	40.4 (24.6)	64.3 (24.6)	23.4 (24.6)
p	***	***	*
Physical Punishment			
Moderately Serious	45.9 (40.3)	39.4 (30.5)	27.4 (30.5)
Serious	42.5 (40.3)	45.2 (30.5)	21.3 (30.5)
p			
* = p < .05 * = p < .01 *** = p < .001			

^a Information from parent only; expected values in parentheses

Table 9.16 Delinquency Seriousness Classification as a Predictor of Family Interaction in Middle Sample (%)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poorly Supervised	Poorly Supervised	Poorly Supervised
Delinquency			
Moderately Serious	29.1 (23.9)	21.9 (20.1)	23.7 (20.2)
Serious	40.4 (23.9)	36.9 (20.1)	39.8 (20.2)
p	**	*	**
	Poor Relationship With Mother	Poor Relationship With Mother	Poor Relationship With Mother
Moderately Serious	34.7 (22.3)	30.9 (21.9)	37.8 (22.0)
Serious	41.7 (22.3)	46.4 (21.9)	27.5 (22.0)
p	***	***	**
	Inconsistent Discipline	Inconsistent Discipline	Inconsistent Discipline
Moderately Serious	28.2 (31.3)	26.8 (20.7)	21.3 (20.8)
Serious	38.7 (31.3)	20.1 (20.7)	24.7 (20.8)
p			

* = $p < .05$

* = $p < .01$

*** = $p < .001$

Expected values in parentheses

Table 9.16 (Continued)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poor Communication With Mother	Poor Communication With Mother	Poor Communication With Mother
Delinquency			
Moderately Serious	29.1 (23.1)	32.1 (24.0)	30.7 (24.1)
Serious	29.2 (23.1)	46.4 (24.0)	28.9 (24.1)
p	**	***	
	Physical Punishment	Physical Punishment	Physical Punishment
Moderately Serious	21.6 (20.8)	12.9 (15.0)	18.9 (15.0)
Serious	29.3 (20.8)	20.1 (15.0)	19.3 (15.0)
p		*	
* = p < .05 * = p < .01 *** = p < .001			

Expected values in parentheses

Table 9.17 Delinquency Seriousness Classification as a Predictor of Family Interaction in Oldest Sample (%)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poorly Supervised	Poorly Supervised	Poorly Supervised
Delinquency			
Moderately Serious	35.0 (24.4)	33.6 (20.8)	27.8 (21.1)
Serious	44.5 (24.4)	25.9 (20.8)	29.1 (21.1)
p	***	***	
Variable	Poor Relationship With Mother	Poor Relationship With Mother	Poor Relationship With Mother
Moderately Serious	32.6 (22.3)	39.1 (23.5)	27.2 (23.7)
Serious	34.8 (22.3)	20.7 (23.5)	27.8 (23.7)
p	**	**	
Variable	Inconsistent Discipline	Inconsistent Discipline	Inconsistent Discipline
Moderately Serious	27.4 (23.4)	24.8 (17.6)	25.4 (17.7)
Serious	10.9 (23.4)	52.6 (17.6)	30.9 (17.7)
p		***	**

* = $p < .05$

* = $p < .01$

*** = $p < .001$

Expected values in parentheses

Table 9.17 (Continued)

Variable	Year 1-Year 2	Year 2-Year 3	Year 1-Year 3
	Poor Communication With Mother	Poor Communication With Mother	Poor Communication With Mother
Delinquency			
Moderately Serious	32.7 (21.9)	36.9 (23.1)	31.4 (23.2)
Serious	31.7 (21.9)	28.5 (23.1)	33.8 (23.2)
p	*	**	*
Physical Punishment			
Moderately Serious	36.0 (40.1)	33.1 (31.1)	36.0 (40.1)
Serious	47.4 (40.1)	21.0 (31.1)	47.4 (40.1)
p			
* = p < .05 * = p < .01 *** = p < .001			

Expected values in parentheses

prior delinquency in the youngest and oldest sample, but not for all comparisons (three significant findings out of nine).

In summary, delinquency predicted future poor family interaction patterns, particularly poor supervision, poor parent-child relationship, and poor communication. The findings showed significant but weak predictive relations between poor family interactions and delinquency, and between delinquency and poor family interaction. However, to what extent did poor family interaction predict delinquency better than the reverse? The strength of the relationships, expressed by a correlational measure for contingency tables, Kramer's V , were not substantially different depending on the direction of the predictive relationships. For example, the average correlation between poor supervision and later delinquency was .17, compared an average correlation of .16 that delinquency predicted poor supervision across the three years. This strongly suggests a weak reciprocal relationship between family interaction and delinquency over time.

SUMMARY

Family interaction patterns were weakly related to delinquency in the findings reported in each of the two parts of the paper. There were also weak relationships between family interaction patterns and juveniles' substance use. Both parental neglect and conflict between parent and children were associated with youngsters deviant behavior, but neglect was associated with substance use, while neglect and conflict were both related to

delinquency.

With child as an informant, the relationships tended to be stronger for older than for younger children, but this difference largely disappeared when parents' information was used as well. The inclusion of parent information was useful both for the measurement of parent's child rearing practices as well as for those constructs that reflected reciprocal familial interactions, such a parent-child relationships. Perhaps more importantly, combined information from parent and child augmented the explanation of the seriousness of delinquency in the child.

Family interaction patterns, particularly mother-child relationship, mother-child communication. and parental supervision were quite stable over time. The magnitude of the stability coefficients slightly improved with age, indicating that child rearing and interaction patterns might have been more fixed and less flexible the older the youngsters became.

The present findings build on the results reported in Chapter 8, showing mutual relationships between youth's attachment to parents and delinquency. We know from other studies that poor family interaction is associated with the emergence and aggravation of deviant child behavior (Loeber & Stouthamer-Loeber, 1986). The impact that deviant behavior may have on later family interaction patterns is less well understood. Juvenile misbehavior, once detected by the parent may result in the parent taking steps, such as a stiff talk, strict forms of discipline, or ignoring the behavior. The latter

often entails a pattern of avoidance of pressuring the child to comply. This can be caused by caretakers' apprehension and experience that, when disciplined, the child may accelerate in misbehavior.

Family interaction in both sections of the paper was weakly related to delinquency. This was surprising to us, because of a large body of prior research often showing stronger relationships between the two (Loeber & Stouthamer-Loeber, 1986). Other analyses on the Pittsburgh data have shown that family interaction factors, such as lack of supervision and poor parent-child relations, are particularly important for the initiation of delinquent activities (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991).

POLICY IMPLICATIONS

Many of the policy implications expressed in Chapter 8 also apply here. The reciprocal nature of family interaction and delinquency and substance use by youngsters need not be elaborated further. The implications for possible intervention are reasonably clear: it is common practice for staff in child clinics to coach parents in reducing counter-productive interchanges with their youngsters and establishing firm rules, rewards for good behavior, and augmenting parental supervision of the youth (Kazdin, 1985). Most of these interventions have been applied to youngsters of an adolescent or slightly earlier age. Findings reviewed in Chapters 3 and 7 indicate that some forms of problem behavior often start earlier than adolescence. The

findings from the present Chapter suggest that some forms of unproductive family interaction are already in place at an earlier age of the child.

Attention to such patterns of interaction is particularly warranted because an early onset of delinquent behaviors is one of the most important markers for the continuity of delinquency over time. In fact, research findings indicate that most eventual male chronic offenders experienced an onset of serious problem behavior that started early in life (Blumstein, Cohen, Roth, & Visher, 1986; Loeber, 1982). Therefore attention to possible causal factors responsible for the genesis of early onset offenders, including factors lying within the family, has great urgency.

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CHAPTER 10

COMMITMENT TO SCHOOL AND DELINQUENCY

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INTRODUCTION

School is one of the major settings for the socialization of children in American society. Along with the family, the school is a primary mechanism for teaching conventional values and for preparing adolescents for a successful life in the mainstream of society. Because of this, an adolescent's commitment to school has long been viewed as an important buffer against delinquent behavior. Youth who have a strong commitment to school are generally viewed as unlikely candidates to be serious delinquents or to be chronic drug abusers.

The notion that strong commitment to school reduces delinquency and drug use is found in many theories of delinquent behavior. For example, it is a central proposition in strain theory (Cloward and Ohlin, 1960), control theory (Hirschi, 1969), social learning theory (Akers, 1977), and integrated theory (Elliott, Huizinga and Ageton, 1985). Moreover, this contention has been supported in many cross-sectional studies of delinquency -- there tends to be strong correlation between an adolescent's commitment to school and low rates of delinquency and drug use.

Recently, there has been an increasing awareness that commitment to school and delinquency may be interrelated in a

more dynamic way than has been previously thought. Interactional theory (Thornberry, 1987), for example, suggests that while commitment to school causes a reduction in delinquency and drug use, delinquency and drug use also cause a reduction in commitment to school. That is, youth who are heavily involved in serious delinquency, drug use, or both, are likely, as a result, to do poorly in school and to reduce their commitment to school. If this view is accurate, then over time low commitment to school would cause an increase in delinquency and then delinquent behavior would cause a reduction in commitment to school and so on. That is, these factors would be reciprocally related.

Empirical evidence about this reciprocal relationship is scant, however, since testing it requires longitudinal data. Nevertheless it is an important policy issue. Many delinquency prevention and treatment programs assume that the relationship between these variables is like a "one-way street" with the causal flow entirely from commitment to school to delinquency. Because of this they try to improve school performance as a means of reducing delinquency. If the world really is a "two-way street," however, in which school and delinquency mutually cause each other -- or worse yet a "one-way street" in which the causal flow is from delinquency to reduced commitment to school -- then these programs would be based on false premises and, to that extent, would be relatively ineffective. The remainder of this chapter examines the longitudinal relationship between these variables.

METHODS

Commitment to school is measured by a six-item scale selected from the core measures of the Program of Research on the Causes and Correlates of Delinquency. The items measure the extent to which the student likes school, works hard in school and views school as important. The actual items, along with reliability coefficients, appear in Appendix 10A, Table A10.1. In general, this central educational concept is measured quite well in all three data sets. For these analyses, students are divided into the lowest quartile -- the 25 percent with the lowest commitment to school -- versus all others. As in most of the other chapters of this report, delinquency is measured by the concepts of street crimes and drug use.

This analysis uses data for three time periods, Years 1, 2 and 3. Data on commitment to school were collected during all three years in Denver and Rochester but only during Wave 1 in Pittsburgh.

The analysis first compares the cross-sectional relationship between these variables at Years 1, 2 and 3. It then examines the longitudinal relationship between earlier commitment to school and later delinquency, followed by the longitudinal analysis of the relationship between earlier delinquency and later commitment to school. Finally, using five waves of data from the Rochester Youth Development Study and three waves from the Denver Youth Survey it examines a panel model of the reciprocal causal relationships between these variables.

CROSS-SECTIONAL RELATIONSHIPS

Table 10.1 presents the cross-sectional relationship between commitment to school and street crimes for the three time periods. There is a clear and consistent relationship between these variables at each of the sites and at all three time periods. Students who have low commitment to school are more apt to report having committed street crimes than are students who have greater commitment to school. For example, in Denver during Year 1, 27.9 percent of the students with low commitment engaged in street crimes while only 10.7 percent of those with higher commitment did so. Similarly, in Rochester at Year 3, 22.7 percent of those with low commitment reported street crimes while only 9.2 percent of those with greater commitment did so.

Table 10.2 presents the cross-sectional results for drug use. The results are very similar to those just discussed for street crimes. In general, very few of the students with higher school commitment used drugs, but significantly more of those with low school commitment used drugs. Overall, the expected cross-sectional relationship between commitment to school and delinquency/drug use is observed at all three sites.

Demographic Comparisons

The cross-sectional analysis just reported was repeated with the samples subdivided by the major demographic variables of gender, race/ethnicity and age. Since there are very few differences between the results for the total sample and those

Table 10.1. Cross-Sectional Relationship Between Commitment to School and Street Delinquency

Street Delinquency:	Year 1			Year 2			Year 3		
	Commitment to School		<u>n</u>	Commitment to School		<u>n</u>	Commitment to School		<u>n</u>
	<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>		<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>		<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>	
Denver	27.9	10.7***	(859)	27.6	12.1***	(791)	29.9	12.4***	(1087)
Pittsburgh	30.5	16.2***	(1009)	--	--		--	--	
Rochester	33.1	20.8***	(871)	29.8	17.3***	(890)	22.7	9.2***	(851)

* p < .05 ** p < .01 *** p < .001

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 10.2. Cross-Sectional Relationship Between Commitment to School and Drug Use

<u>Drug Use:</u>	Year 1			Year 2			Year 3		
	<u>Commitment</u>			<u>Commitment</u>			<u>Commitment</u>		
	<u>to School</u>			<u>to School</u>			<u>to School</u>		
	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>
	<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>	
Denver	30.4	9.1***	(851)	31.1	10.6***	(779)	20.6	8.0***	(1053)
Pittsburgh	6.9	3.1***	(1009)	--	--		--	--	
Rochester	22.6	9.8***	(867)	26.4	12.7***	(889)	22.2	8.9***	(850)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

for the demographic subgroups the results are presented in Appendix 10A as Tables A10.2 to A10.7.

The only substantive difference to be noted concerns the comparison between males and females regarding street crimes (Table A10.2). While all the differences for the males are significant, four of the six comparisons for the females do not attain statistical significance. It would appear that the role of commitment to school in accounting for street crimes is more important for males than for females. For drug use, however, the relationships are significant and quite sizeable for both males and females (Table A10.3).

For the major racial and ethnic groups (Tables A10.4 and A10.5) the basic finding of a strong cross-sectional relationship between commitment to school and both delinquency and drug use is replicated. Some of the differences in the white and other samples in Denver failed to attain statistical significance but this appears to be due to the small sample sizes for these groups. In general, however, low commitment to school appears to be related to higher involvement in street crimes and drug use for whites, blacks and Hispanics.

Finally, Tables A10.6 and A10.7 examine this relationship when age or grade in school is held constant. Again, the basic relationship is replicated. Regardless of age, commitment to school tends to reduce delinquency and drug use across this age span which covers a total period from the fourth (Pittsburgh fourth grade sample at Year 1) to the twelfth (Denver fifteen year old sample at Year 3) grades.

SUMMARY

The cross-sectional relationship between commitment to school and delinquency noted in previous research is clearly replicated in these three projects. Also, it is generally replicated within major demographic subgroups. The only exception to this conclusion concerns the much weaker relationship between commitment to school and street delinquency for females.

LONGITUDINAL RELATIONSHIPS

Although the preceding analysis has shown that commitment to school and delinquency are related, it does not resolve the question of either the temporal or the causal order between these variables. Does low commitment lead to higher rates of delinquency? Does greater involvement in delinquency lead to a reduced commitment to school? Or, do these variables mutually influence each other over time? To answer questions of this sort we need to move to longitudinal analyses that examine how earlier values on one of these variables is related to subsequent values on the other variable. This is the type of relationship that the longitudinal design of the Program of Research on the Causes and Correlates of Delinquency was established to uncover.

THE EFFECT OF COMMITMENT TO SCHOOL ON DELINQUENCY

We can begin by examining the effect of earlier commitment to school on later delinquency and drug use. To do this, Tables 10.3 and 10.4 present information on whether students with low commitment to school at Year 1 are more likely to report street crimes and drug use at Year 2 than are students with higher

commitment to school at Year 1. These tables then repeat the analysis looking at changes from Year 2 commitment to Year 3 delinquency. Doing so allows us to see if low commitment to school precedes, and therefore potentially causes, delinquency.

The basic results are quite supportive of this proposition. Youngsters who are low in commitment at Year 1 are significantly more likely to commit street crime in Year 2, and youngsters who are low in commitment at Year 2 are significantly more likely to commit street crimes at Year 3 (see Table 10.3). To illustrate this point the first comparison in Table 10.3 indicates that 29.9 percent of the students in Denver who had low commitment to school at Year 1 reported street crimes during the following year but only 11.8 percent of those with higher commitment to school did so.

The same relationship is also seen for drug use (Table 10.4). Students with low commitment to school at one time have higher rates of drug use at later times. For example, 23.5 percent of the Rochester students with low commitment at Year 2 report drug use at Year 3 but only 8.6 percent of those with higher commitment do.

These longitudinal analyses were replicated separately by gender, race/ethnicity and age; the results appear in Appendix 10A, Tables A10.7 to A10.13. Overall, the results are quite consistent with those reported for the total sample. As was the case in the cross-sectional analysis, the only departure from this trend concerned the involvement of females in street crimes (Table A10.8). Low commitment to school did not lead to

Table 10.3. Relationship Between Earlier Commitment to School and Later Street Delinquency

Year 1 to Year 2				Year 2 to Year 3			
<u>Year 2</u> <u>Delinquency:</u>	<u>Commitment</u> <u>to School</u> <u>at Year 1</u>		<u>n</u>		<u>Commitment</u> <u>to School</u> <u>at Year 2</u>		<u>n</u>
	<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>			<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>	
Denver	29.9	11.8***	(790)		27.5	17.2**	(763)
Pittsburgh	26.8	17.4**	(983)		--	--	
Rochester	27.4	19.0*	(829)		25.4	8.7***	(891)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 10.4. Relationship Between Earlier Commitment to School and Later Drug Use

Year 1 to Year 2				Year 2 to Year 3			
<u>Year 2</u> <u>Drug Use:</u>	<u>Commitment</u> <u>to School</u> <u>at Year 1</u>		<u>n</u>	<u>Year 3</u> <u>Drug Use:</u>	<u>Commitment</u> <u>to School</u> <u>at Year 2</u>		<u>n</u>
	<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>			<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>	
Denver	33.2	10.9***	(777)		22.2	12.4**	(748)
Pittsburgh	7.7	3.4**	(1009)		--	--	
Rochester	27.7	13.6***	(828)		23.5	8.6***	(889)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

subsequent involvement in street crimes for the females in Denver or Rochester. Aside from this exception, the other relationships are generally significant and in the expected direction.

In general, therefore, we conclude that low commitment to school is associated with later involvement in street crime and drug use. This finding appears to be relatively robust across sites and demographic subgroups.

THE EFFECT OF DELINQUENCY ON COMMITMENT TO SCHOOL

The data in Tables 10.5 and 10.6 reverse the relationships and look at the effect of earlier delinquency on later commitment to school. The question posed here is: do youngsters who report engaging in street crime and using drugs experience subsequent low commitment to school?

From these data it would appear that the answer is yes. For example, of the Rochester youngsters who report street crimes at Year 1, 37.2 percent have low commitment to school at Year 2, but of those who do not report street crimes at Year 1, 25.8 percent have low commitment to school at Year 2 (see Table 10.5). The results are similar for drug use. For example, of the Denver youth who report drug use at Year 2, 40.1 percent had low commitment at Year 3, but of those who did not report drug use at Year 2, only 24.3 percent had low commitment at Year 3 (see Table 10.6). In general, therefore, it appears that involvement in delinquency and drug use may lead to reductions in the adolescent's commitment to school.

These findings were also replicated within demographic subgroups and the results reported in Tables A10.14 to A10.19 of

Table 10.5. Relationship Between Earlier Street Delinquency and Later Commitment to School

Year 1 to Year 2				Year 2 to Year 3			
Year 2 Low Commitment to School :	Street Delinquency at Year 1		<u>n</u>	Year 3 Low Commitment to School :	Street Delinquency at Year 2		<u>n</u>
	No <u>%</u>	Yes <u>%</u>			No <u>%</u>	Yes <u>%</u>	
Denver	22.0	35.1**	(783)		25.5	45.5***	(760)
Pittsburgh	--	--			--	--	
Rochester	25.8	37.2**	(835)		24.6	36.1**	(832)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 10.6. Relationship Between Earlier Drug Use and Later Commitment to School

Year 1 to Year 2				Year 2 to Year 3			
Year 2 Low Commitment to School _____:	Drug Use at Year 1		<u>n</u>		Drug Use at Year 2		
	No <u>%</u>	Yes <u>%</u>			No <u>%</u>	Yes <u>%</u>	
Denver	21.3	43.6***	(777)		26.2	44.3***	(745)
Pittsburgh	--	--			--	--	
Rochester	26.1	43.7***	(832)		24.3	40.1***	(831)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Appendix 10A. The pattern of findings just reported is repeated for both boys and girls (Tables A10.14 and A10.15).

The findings for street crimes within racial and ethnic groups is somewhat more complicated (Table A10.16). The results are generally not significant for whites and blacks. For whites this finding may be more a function of a reduction in statistical power because of small cell sizes than it is a substantive difference, however. The differences between the percentages are often sizeable and many of the non-significant findings have a probability level between .10 and .05. Also, when drug use is examined the general relationship is replicated; earlier drug use tends to be related to subsequent low attachment to school (Table A10.17).

Finally, Tables A10.18 and A10.19 examine these relationships by age. By and large the pattern of findings is again replicated. The only exception is for the eighth grade sample in Rochester, but again the differences in percentages are sizeable and the probability level for statistical significance for the relationship between Year 2 street crimes and Year 3 commitment is .06.

SUMMARY

This section examined the longitudinal relationship between commitment to school and self-reports of both street crimes and drug use. Overall, the results suggest that these variables are mutually interrelated over time. On the one hand, adolescents who have low commitment to school at one time report significantly higher involvement in both street crimes and drug

use at subsequent time periods. This finding was consistently replicated within demographic subgroups. On the other hand, adolescents who report involvement in street crimes and drug use at one time also report lower commitment to school at subsequent times. This finding was not as consistently replicated within subgroups but the weight of the evidence certainly suggests the finding is robust, applying across sites and subgroups.

These results imply that a simple model, which assumes that the relationship between these variables is a "one-way street" in which the causal flow is entirely from low commitment to school to higher delinquency, is inadequate. Rather, the relationship between these variables appears to be more complex. It seems that low commitment does increase the chances of delinquency, but also that delinquency increases the chances of having low commitment to school. Moreover, a comparison of the percentages in Tables 10.3 and 10.5 and in Tables 10.4 and 10.6 suggest that the magnitude of these two effects are of about the same magnitude.

PANEL ANALYSIS

The preceding findings suggest, but do not demonstrate, that commitment to school and delinquency are reciprocally related. For a variety of statistical reasons, examining the two causal directions separately offers only a weak test of the hypothesis that these variables are reciprocally related. A stronger and more accurate test is provided by analyzing panel models that simultaneously examine the mutual relationships between these variables. Figures 10.1 through 10.4 report the results of panel

models that examine the reciprocal relationship between commitment to school and delinquency over the first five waves of the Rochester Youth Development Study and the first three years of the Denver Youth Survey.

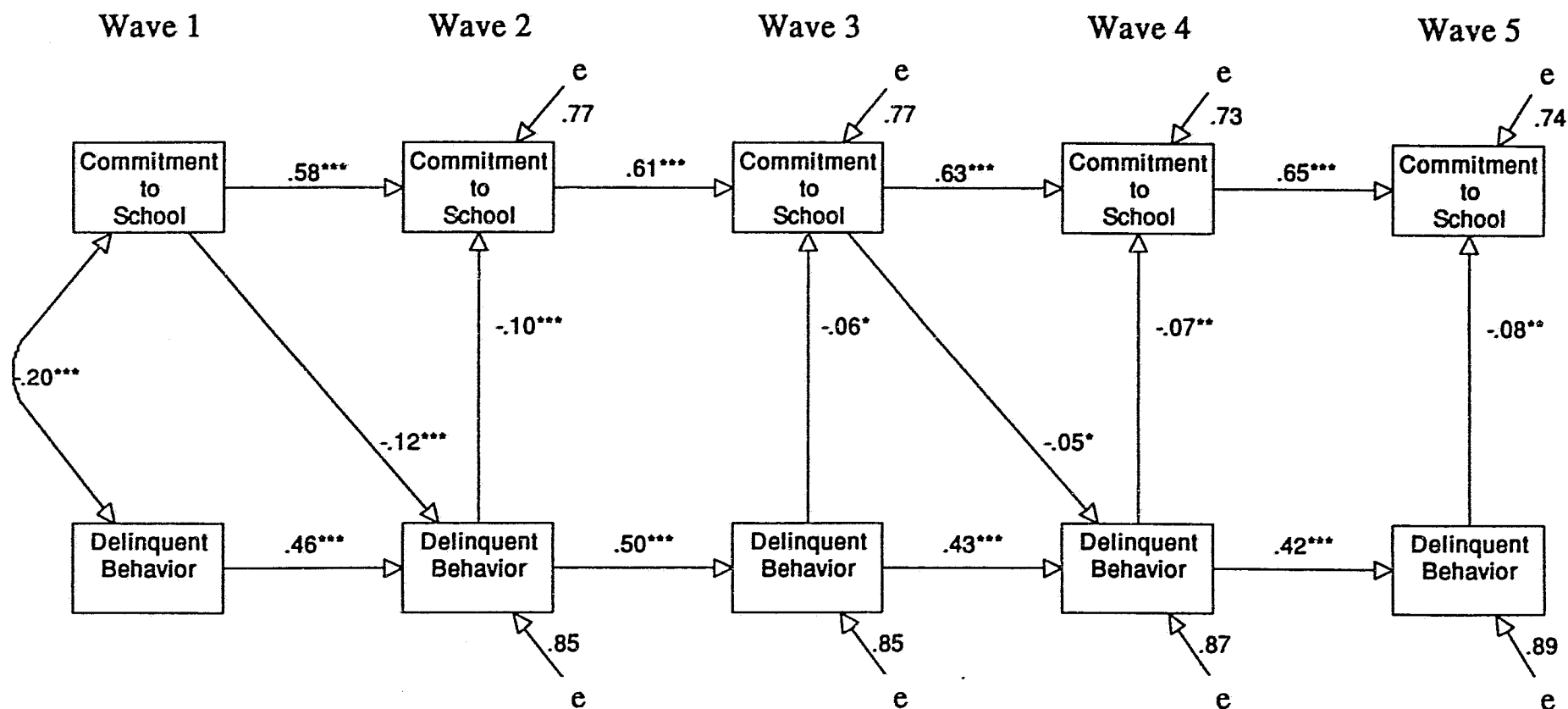
We can begin by discussing the impact of commitment to school on street crimes in Rochester (Figure 10.1). Only two of these effects are significant -- from Wave 1 to Wave 2 it is $-.12$ and from Wave 3 to Wave 4 it is $-.05$. The negative direction is expected since low school commitment should lead to increases in street crime. Overall though, the impact of school commitment on street crime is not particularly strong or consistent.

On the other hand, the impact of street crime on reducing commitment to school is significant at all four time periods. The coefficients range from $-.10$ at Wave 2 to $-.06$ at Wave 3. Again, the negative direction is expected; higher involvement in street crimes should lead to a reduction in commitment to school.

The same relationships for the three years of the Denver study are reported in Figure 10.2. Involvement in street crimes exerts a sizeable negative impact on commitment to school, with both lagged effects and one of the instantaneous effects attaining statistical significance. On the other hand, commitment to school is not related to delinquent behavior.

Figure 10.3 presents the panel model for commitment to school and drug use in Rochester. Here we see that commitment to school exerts a consistent impact on drug use. The downward diagonal arrows are all significant and vary in size from to $-.12$

Figure 10.1 Panel Model for Youth's Commitment to School and Street Crimes,
Rochester Youth Development Study.

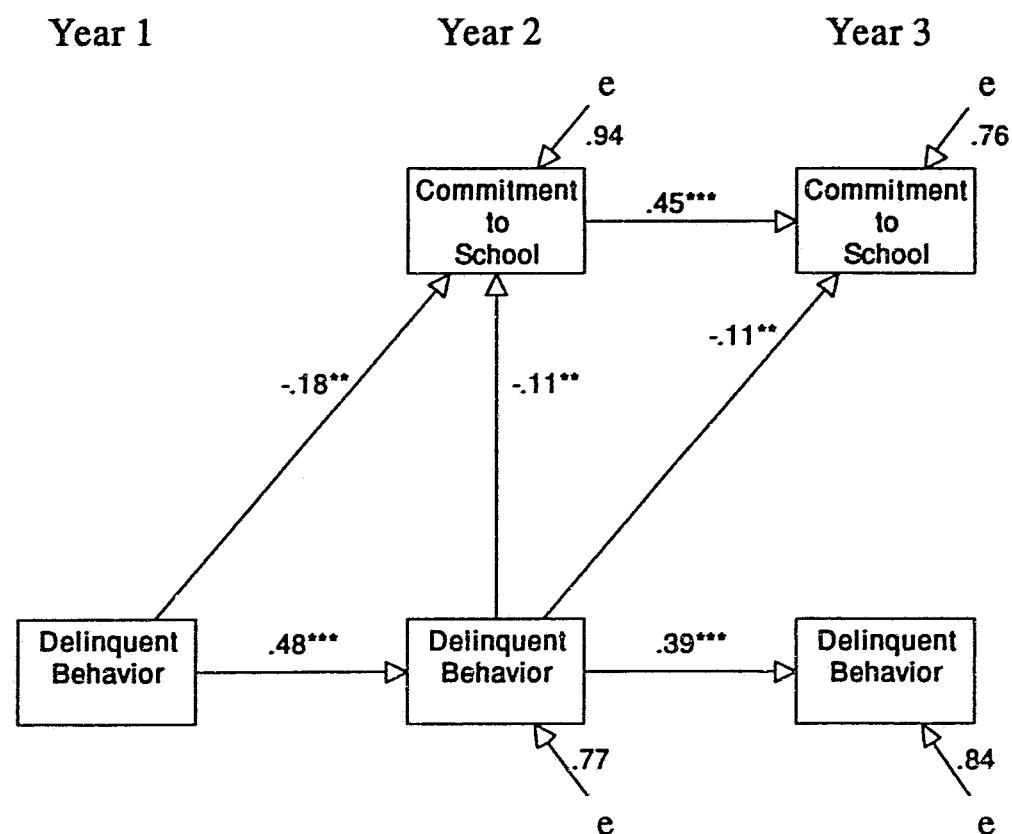


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 270.24 Degrees of Freedom = 24 Prob. < .001

Bentler-Bonett NFI = .929

Figure 10.2 Panel Model for Youth's Commitment to School and Street Crimes,
Denver Youth Survey.

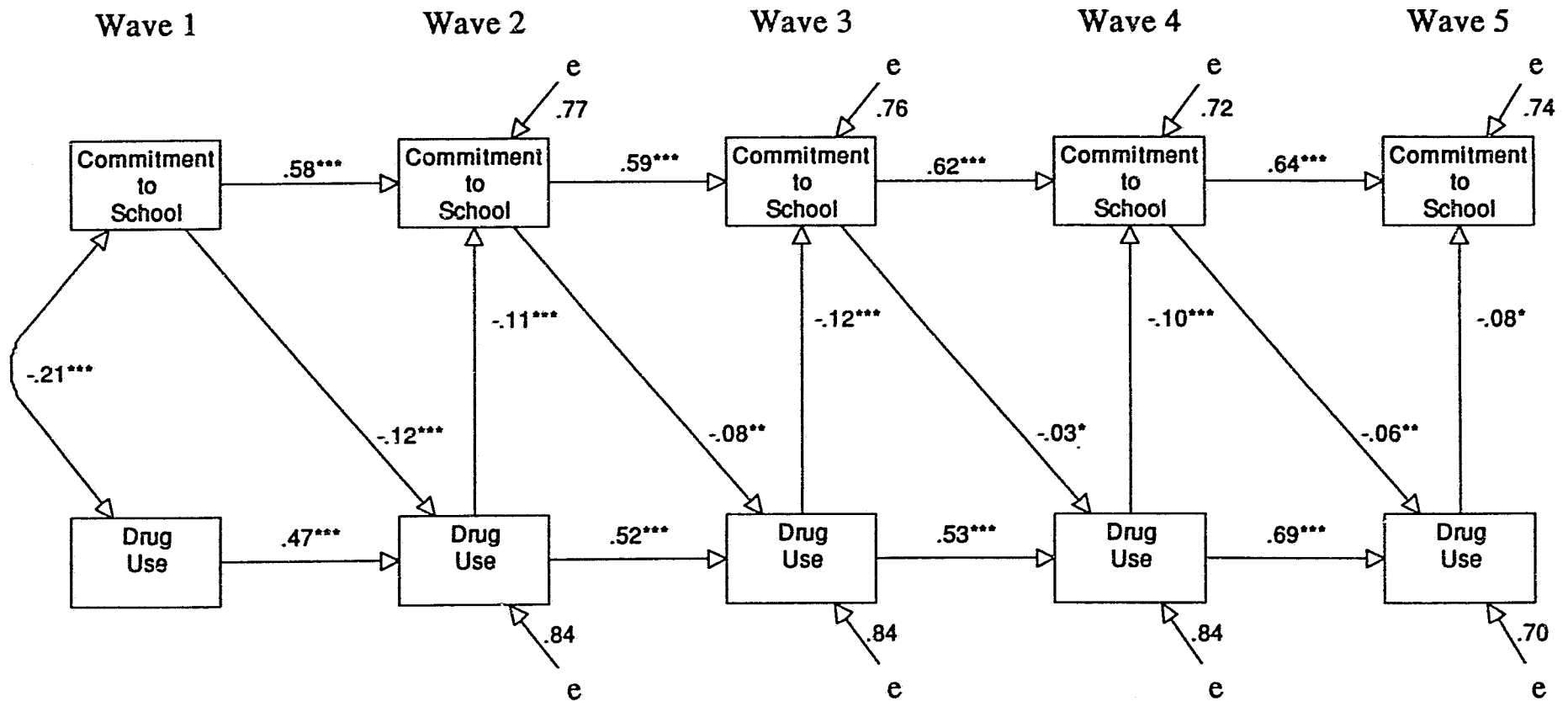


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 14.79 Degrees of Freedom = 2 Prob. < .001

AGFI = .94

Figure 10.3 Panel Model for Youth's Commitment to School and Drug Use,
Rochester Youth Development Study.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 364.28 Degrees of Freedom = 24 Prob. < .001

Bentler-Bonett NFI = .918

at Wave 1 to $-.03$ at Wave 3. These findings suggest that youngsters who have low commitment to school at one time are likely to have subsequent increases in drug use. In addition, however, results suggest that drug use has a significant impact on commitment to school at each wave. The effects vary from $-.12$ at Wave 3 to $-.08$ at Wave 5. These findings suggest that youngsters who use drugs are likely to experience a subsequent reduction in commitment to school.

Finally, the relationship between these two variables is examined for the Denver data (Figure 10.4). Here we see significant negative effects from drug use to commitment to school, but no significant effects from commitment to school to drug use. Thus, the causal direction more typically presented in the literature is not supported in this analysis.

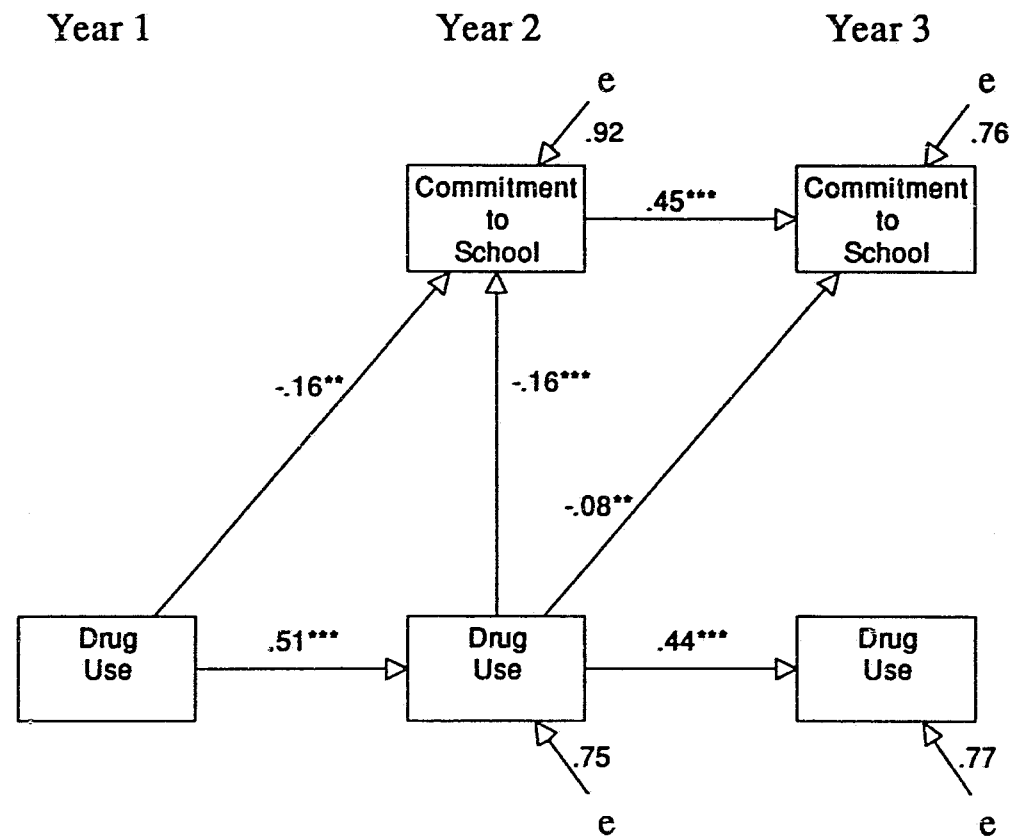
SUMMARY

Overall, the results of these panel models indicate that these variables are involved in a dynamic interrelationship over time. It is not simply the case that low commitment to school generates greater delinquency and drug use. That appears to be true but the situation is more complicated than this -- involvement in street crimes and drug use also leads to a subsequent reduction in commitment to school. Indeed, the effect of delinquency on school is stronger and more consistent than the effect of school on commitment.

POLICY IMPLICATIONS

Traditionally, criminologists have thought of delinquency as a result of, among other variables, low commitment to and a lack

Figure 10.4 Panel Model for Youth's Commitment to School and Drug Use, Denver Youth Survey.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 14.79 Degrees of Freedom = 2 Prob. < .001

AGFI = .94

of success in school. This was true both in theoretical explanations of delinquent behavior and drug use, as well as in prevention and treatment programs. Based on the cross-sectional correlation between these variables it was thought that improving commitment to school would help reduce delinquency and drug use.

The results of this longitudinal analysis suggest that this is only part of the story. Low commitment to school does increase the likelihood of delinquency and drug use, but delinquency and drug use also reduce the student's commitment to school. Because of this the following policy recommendations are suggested:

1. The traditional emphasis on improving educational commitment as a means of reducing delinquency appears well-founded. Poor educational performance seems to be a contributing factor to increases in delinquency and drug use.

2. On the other hand, juvenile justice policymakers need to show greater awareness of the consequences of delinquency and drug use. These behaviors lead to a reduction in commitment to school but there are few programs that attempt to reduce delinquency as a means of improving school performance. These data suggest, however, that educational achievement would indeed be enhanced if delinquency and drug use were brought under control. Educators and others concerned with educational attainment need to consider this factor more explicitly in their remediation programs. That is, programs cannot be entirely classroom or school based because what happens outside the school

-- in delinquent and drug using behaviors -- has a systematic effect on what happens in the classroom.

3. Since these factors -- commitment to school and delinquency -- are reciprocally related, programs should take this explicitly into account and attempt to deal with these factors simultaneously. Failure to do so runs the risk of having inefficient programs. For example, an intervention program that focuses exclusively on improving commitment to school as a means of reducing delinquency might experience some short-term success in improving commitment. But, by ignoring delinquency and drug use, these behaviors should lead to a reduction in school commitment (that is the consequence of the upward arrows in Figures 10.1 and 10.2). This, in turn, could undo the short-term success of the intervention program. To avoid this the program should explicitly and systematically attempt to increase school performance and reduce delinquency and drug use. Such an approach suggests the importance of comprehensive or holistic interventions.

4. The results in both Denver and Rochester suggest that educational factors are more important in explaining involvement in street crimes for boys than girls. Programs that enhance commitment to school may be particularly salient therefore in reducing delinquency among urban males.

5. Finally, since the commitment to school scale taps general reactions to school, programs targeted at improving the overall school climate may be particularly effective. Previous programs that attempted broad-based organizational change of

school and classroom environment have evidenced some success
(e.g. Gottfredson, 1986).

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CHAPTER 11

THE RELATIONSHIP BETWEEN READING ACHIEVEMENT AND DELINQUENCY

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That low educational achievement and, in particular, poor reading skills, and grade retention are related to delinquency is well known (e.g., Hawkins & Lishner, 1987; Hirschi, 1969; McGee, Share, Moffitt, Williams, & Silva, 1988; Tracy, Wolfgang, & Figlio, 1990). However, several important issues relevant for delinquency theory and delinquency interventions remain to be addressed. First, does the relationship between poor reading performance, grade retention, and delinquency found for older children also hold for younger children? Related to this question is whether the relationship between reading performance and delinquency is constant or whether it changes in magnitude with age. Also, will the relationship between reading performance and delinquency hold after other, apparently relevant variables are taken into account? Second, do the associations between reading performance and delinquency apply equally to boys of different ethnic groups? Third, and equally unclear, is whether the severity of reading impairment is related to the seriousness of delinquency.

READING AND DELINQUENCY

The finding that low reading performance is associated with involvement in delinquency, whether measured by self-report or official records, has been consistently reported in the literature (Silberberg & Silberberg, 1971; Gottfredson, 1981; Hirschi, 1969; Bachman, O'Malley, & Johnston, 1978; Rhodes & Reiss, 1969, but see McGee et al., 1988, for an exception). However, because almost all of the cited studies have used adolescent populations, our knowledge is limited to this age group.

Both prospective epidemiological studies (e.g., Huizinga, Esbensen, Loeber, Van Kammen, Thornberry, 1991) and retrospective birth cohort studies (Wolfgang, Figlio, & Sellin, 1972) indicate that delinquent activities, whether measured by self-report or official records, may begin as early as age six or seven. Thus, to gain insight into the origins of the relationship between reading and delinquency, it is necessary to examine the academic careers of boys at younger ages.

Will the association between reading and delinquency be constant, increase, or decrease in magnitude with increasing age? Longitudinal studies of reading performance and special education placement indicate that both are quite stable over time (Belmont & Belmont, 1979; Walker et al., 1988; Wolman, Thurlow, & Bruininks, 1989). Thus, children who are reading at low levels early in their school careers will likely still be reading at low levels much later in school.

Different theories of delinquency argue that poor performance and school failure lead children to feel less attached or bonded to the social order (Hawkins & Weis, 1985; Hawkins & Lishner, 1987), more alienated and frustrated (Cloward & Ohlin, 1960; Elliot & Voss, 1974), or lowered self esteem (Lawrence, 1985), leading to a greater likelihood of becoming delinquent. Accordingly, the probability of delinquency is thought to increase with age as the children reading at the lowest levels experience repeated failure.

The relationship between reading and delinquency is complicated by a number of variables that are known to be associated to both reading performance and delinquency. Examples of such "third variables" are neighborhood, socio-economic status (SES), family relationships, ethnicity, and attention problems. Juvenile delinquency is more prevalent in neighborhoods characterized by a high degree of disorganization than in more orderly neighborhoods (Cloward & Ohlin, 1960; Shaw & McKay, 1942; Sampson, Castellano, & Laub, 1981; Peeples & Loeber, 1992). The role of neighborhood is particularly important because the neighborhood frequently defines a boy's access to academic experiences and favorable social interactions. Also, SES has long been found to be associated with delinquency (Wolfgang et al., 1972; Tracy et al., 1990; Hirschi, 1969; Moffitt, Gabrielli, & Mednick, 1981) and with lower educational performance (Coleman et al., 1966). Although the range of family-related measures is quite broad, family involvement is a construct that has been

linked both theoretically and empirically to reading performance and school attainment (Walberg, 1984; Fehrman, Keith, & Reimers, 1987; Siegel, 1990). Family involvement has also been found to be associated with delinquency (Loeber & Dishon, 1983; Farrington, 1986).

Studies indicate that ethnicity is related to both delinquency and reading. Data on racial differences in delinquency show that white boys are less likely to be involved in delinquent activities than are black boys (e.g., Tracy et al., 1990; Hirschi, 1969; Huizinga et al., 1991). Ethnicity is also associated with reading performance and educational achievement as, on average, white youth outperform black youth on measures of reading performance (Coleman et al., 1966; Langer, Applebee, Mullis, & Foertsch, 1990).

In spite of the evidence linking ethnicity with both delinquency and reading achievement, only one study, by Tracy et al. (1990), has examined the relationship between school achievement and delinquency within different ethnic groups. Although the authors found a significant association between school achievement and delinquency for black and white boys, they did not report whether the association was greater for black than for white boys -- as would be expected by theories of delinquency. Such a comparison is important because it begins to address the question of whether the connections between schooling and delinquency are the same or different for children of different ethnic backgrounds.

The relationship between reading performance and delinquency is also complicated by grade retention which can be a consequence of poor reading performance. In one of the few studies examining grade retention, Glueck and Glueck (1950) found that 46.5% of the delinquent group had repeated two or more grades as compared to 27.2% of the control group. However, because retained students are also older than their non-retained counterparts, they are more likely to be delinquent on the basis of age alone. Thus, grade retention and age are variables that potentially may confound the relationship between reading and delinquency.

Finally, a much neglected set of variables are self-regulatory processes and attention problems. These variables have been found to be related to delinquency in several studies (Farrington, Loeber, & Van Kammen, 1990; Moffitt & Silva, 1988). Also, the importance of attention problems to reading performance has been demonstrated by several studies (Rowe & Rowe, 1992; Jorm, Share, Matthews, & Maclean; 1986). However, it is unclear whether the relation between poor reading performance and delinquency holds when attention problems are taken into account.

DELINQUENCY SERIOUSNESS

The research literature is also limited on the type of relationship between poor reading performance and delinquency. Is there a linear or accelerating relationship between reading performance and the seriousness of delinquent acts, or are there threshold effects? To date, only two studies have examined this question. Tracy et al. (1990) used official records of

delinquency from the 1958 cohort of boys and found that the mean achievement score of one-time offenders was higher than that of nonchronic recidivists, which, in turn, was higher than that of chronic recidivists. Hirschi (1969) reported that boys who had committed no delinquent acts, whether by self-report or by official record, had higher English scores than boys who had committed just one offense, and that boys who had committed two or more offenses had the lowest scores. Although frequency measures of offending offer one perspective, an alternative is to use a measure of offense seriousness, and examine whether the poorer the reading, the more serious the delinquent acts committed by the juveniles.

THE PRESENT STUDY

In the present study, the relationship between two measures of reading performance and delinquency was examined in samples of first, fourth, and seventh grade white and black boys who were randomly selected from a large, inner city school system. Reading performance was assessed by the results of district-wide standardized achievement tests and by a rating of reading performance completed by the boys' teacher. Delinquency was measured by the self-report of the boy and supplemented by data from each boys's caretaker and teacher.

The following hypotheses were tested:

1. Poor reading performance will increase the likelihood of delinquency in boys, and older boys with poor reading performance are more likely to become delinquent than younger boys with poor reading performance.

2. Black boys with poor reading performance are more likely to become delinquent than white boys with poor reading performance.
3. The worse the reading performance, the more serious the delinquent acts committed by the boys.

METHODS

SUBJECTS

The subjects in this study were all boys in the youngest, middle and oldest samples of the Pittsburgh Youth Study, who were enrolled in either the first ($N = 503$), fourth ($N = 508$), or seventh grades ($N = 506$), respectively.

MEASURES AT SCREENING ASSESSMENT

Caretaker. The caretaker completed a version of the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983) that had been enlarged and extended by adding 88 items that measured specific delinquent actions and concealing or covert antisocial behavior as well as many of the items from the Self-Reported Delinquency Scale (SRD) (Elliot, Huizinga, & Ageton, 1985). The response time frame for the CBCL was the previous six months. In addition, the caretaker was asked whether any of a set of 21 discrete antisocial behaviors had "ever" occurred (i.e., lifetime prevalence).

Child. The boys in the oldest sample were administered a revised version of the SRD and a version of the Youth Self Report (YSR) (Achenbach & Edelbrock, 1987; Loeber et al., 1989) that had been extended and enlarged in the same manner as the caretaker CBCL had been. The time frame for the SRD was both "ever" and "past six months" and that for the extended YSR was the past six

months. The boys in the youngest and middle samples were administered an adaptation of the SRD, termed the Self Report of Antisocial Behavior (SRA), because some of the items of the SRD were judged to be too difficult for the younger boys to understand and respond to meaningfully and because the SRD was judged to miss behaviors more typical of younger boys (Loeber et al., 1989; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991). The time frame for the SRA was both ever and past six months. The extended YSR was not administered to boys in the youngest or middle samples.

Teacher. Teachers completed a version of the Teacher Report Form (TRF) (Achenbach & Edelbrock, 1986) that had been enlarged in the same manner as the CBCL and the YSR. The time frame for the extended TRF was the previous six months. As the screening assessment was conducted during the fourth nine week period of the school year, the time frame of the assessment effectively covered the middle and last halves of the school year.

Reading Achievement. Reading achievement was measured by the reading portion of the California Achievement Test (CAT) battery. The CAT battery is a group test of achievement that is administered in April or May of the school year by the Pittsburgh Board of Education to all enrolled students (grades K-12) attending classes on the days of testing. Form C (CTB/McGraw-Hill, 1979) was used to measure the reading achievement of the boys recruited in 1986-87 ($N = 452$) and Form E (CTB/McGraw-Hill, 1986) was used for boys recruited in 1987-88 ($N = 1,065$). The change in Form occurred because the Board of Education changed over to a new form of the CAT in the 1987-88 school year.

Reading achievement is measured somewhat differently on Form E than on Form C. Although both Form E and Form C include a Vocabulary and a Comprehension subtest at all test levels beyond the Kindergarten level, Form C also includes a measure of Phonic Analysis at the first grade level. Also, the Form C total Reading score is computed as the sum of subtest raw scores while the Form E total score is computed as the mean of the subtest standard scores. The KR-20 reliability of Form E reading total score varies from .90 at grade 1 to .97 at grade 7 (CTB/McGraw-Hill, 1986). Form C scores were converted to Form E scores by an equating process to be described below.

MEASURES AT FOLLOW-UP ASSESSMENT

The first follow-up assessment (Wave A) was undertaken approximately six months after the screening assessment. With the exception of the middle sample, caretakers, teachers, and the boys in the youngest and oldest samples were administered the same measures they had completed at Screening. The boys in the middle sample were administered the SRD rather than the SRA that they had received at Wave S. At Wave A, caretakers and boys were also administered questionnaires about child rearing and family functioning. The time frame for all instruments was the previous six months period (i.e., the approximate interval from the previous assessment to the follow-up assessment).

Constructs

Delinquency seriousness classification. The delinquency seriousness classification assigned a boy to one of six levels based on the most serious delinquent act reported by a boy or attributed to a boy by his caretaker or his teacher during a specified time period (see Loeber, Weiher, & Smith, 1991, for a more detailed description). The seriousness ratings for delinquent acts were derived from the work of Wolfgang, Figlio, Tracy, and Singer (1985).

The six levels defined are the following. Level 0: No delinquency. Level 1: minor delinquency at home (i.e., minor theft or aggression that occurred in the boy's home only). Level 2: minor delinquency outside the home (i.e., minor theft, vandalism or fraud that occurred outside the boy's home). Level 3: moderate delinquency (i.e., theft of items over \$5, carrying weapons, joyriding, or gangfighting). Level 4: serious delinquency (i.e., car theft, breaking and entering, strongarming, aggravated assault, forced sex, or selling drugs). Level 5: multiple serious delinquencies (i.e., two or more occurrences of a Level 4 act in the specified time period).

The time period for the present study is that of the boy's lifetime (i.e., ever). This was computed by combining the data for ever that were gathered at S with that for the six month period from Wave S to Wave A.

Reading achievement score. Reading achievement was measured on a normal curve equivalents (NCE) scale. NCE scaled scores were used rather than percentile scores because an NCE scaling creates an equal interval scale.

The fact that two forms of the CAT had been used necessitated equating Form C scores to Form E scores. This was done through the use of equating tables provided courtesy of CTB/McGraw-Hill (see CTB/McGraw-Hill, 1986 for details of construction and use). Briefly, equating tables are constructed by identifying the raw score on the first form that corresponds to the same percentile on the second form when both forms have been administered to the same sample.

The equivalence of the equated Form C scores to Form E scores was tested by comparing the two sets of scores for the entire sample and by evaluating whether the Form C equated scores and the Form E scores have equal (i.e., parallel) relationships to both sample variables (grade and ethnicity) and substantive variables (delinquency) to within sampling error and true sample variation. Evidence for parallelism would be indicated by a nonsignificant interaction between Form and the outside variable.

Comparison of the Form C equated scores with the Form E scores showed that the Form C equated scores differed from the Form E scores by 0.6 NCE points (0.02 SDs) -- an amount that was not significant. The results showed that the interaction term for the three outside variables, ethnicity, grade, and delinquency was not significant at the .05 level. Thus, the Form C equated scores and the Form E scores were taken as equivalent.

Teacher rated reading. The classroom teacher's rating of the boy's current reading performance was taken from the Teacher Report Form (Achenbach & Edelbrock, 1986) at Waves S and A. Current performance on the TRF is measured by a single item, five point (1 = Far below grade to 5 = Far above grade) scale. For the

analysis, a two item composite scale was formed by averaging the raw score values of the two ratings. The correlation between the Wave S and Wave A ratings was .63, which indicates a substantial stability of the rating, and particularly so given that the ratings at Wave S and Wave A were made by different teachers.

Repeated grade. This construct measured whether a boy had ever repeated a grade as of the follow-up assessment. It was developed by combining the caretaker's report of "ever repeated a grade", collected at screening, with the teacher's report of current grade repetition, collected at both screening and follow-up, and the caretaker's report of current grade repetition collected at follow-up. A notation of retention from any of these sources was taken as indicating a boy had repeated a grade.

Expected grade for age. This construct paralleled the Repeated Grade construct just described except that it was made by comparing expected grade placement at follow-up with actual grade placement. Expected placement was computed from a boy's age at follow-up and the district's rule that first graders must be at least six years of age in the calendar year they complete first grade. Boys whose expected grade placement matched their actual grade placement were defined as being on grade and boys whose expected placement did not match their actual placement (e.g., fifth grade expected versus fourth grade actual) were defined as being off grade. The percentage agreement and the Kappa statistic between this measure and the previous measure, Repeated Grade, was 87.1% and .74, respectively, over the three samples.

Socio-economic status (SES). Individual SES scores were computed for the caretaker and for the caretaker's partner, if present. The individual scores were computed as described by Hollingshead (1975) from information provided by the caretaker about their and their partner's educational levels and occupations. The SES measure used in this study was computed by choosing the higher of either the caretaker's score or their partner's score, if present.

Attention problems. This construct consisted of four items from the caretaker CBCL and the same four items from the teacher TRF. The items are (a) Can't concentrate; (b) Difficulty following directions; (c) Inattentive, easily distracted; and (d) Doesn't finish jobs. The internal consistency reliability of four items by parent report is .78 and .89 by teacher report. The correlation between parent and teacher report is .35. Scores for the measure were constructed by averaging over the eight items so that a higher score means more attention problems. The correlation between scores for Wave S and Wave A was .70.

Family involvement. This construct consisted of four items that measured the extent of a boy's involvement with his family by joining other family members in activities and outings and in helping to plan activities as seen by his caretaker. The internal consistency reliabilities of the scale were .58, .52, and .65 for the youngest, middle, and oldest samples, respectively. The scale score was computed so that a higher score means less involvement.

Neighborhood. This construct measures whether or not a boy resided in the lowest quartile of Pittsburgh neighborhoods at follow-up (Peeples & Loeber, 1992). Six census tract level

variables (median household income, percentage of labor force unemployed, percentage of families below poverty line, percentage of males aged 10-14, percentage of households headed by a female under age 18 and containing children, and percentage of males and females over age 15 who are separated or divorced) from the 1980 census were grouped into three domains (family income, proportion of juvenile males, and family composition). Domain scores were dichotomized at the 75th percentile and summed; then the sum was dichotomized at the 75th percentile. All boys scoring in the upper 25th percentile (i.e., most disadvantaged) of the neighborhood score also had two or more domain scores in the upper 25th percentile.

Extent of Missing Data

A total of 262 boys (17.5%) had missing data on one or more study variables and were excluded from the study. Of the 262 excluded cases, the three variables, neighborhood, reading achievement, and teacher rated reading, were missing for 9.3%, 6.5%, and 2.0%, respectively, of the 1,501 study cases and accounted for the majority of the missing cases. The missing rate for neighborhood was attributed to new addresses falling outside the 1980 census tract definitions used for this variable. Some missing reading achievement data was due to boys ($N = 18$) who transferred out of the public school system after being recruited but before completing their CAT testing. Overall, nonresponse was significantly associated with subjects being in either the youngest (19.6%) or oldest (19.5%) samples rather than the middle (13.3%) samples, $\chi^2 (1, N = 1,501) = 9.32, p < .01$. and black (20.0%) rather than white (14.0%), $\chi^2 (2, N = 1,501) = 8.64, p < .01$.

The impact of nonresponse on the relationship between reading and delinquency should be quite low overall even though the absolute nonresponse rate is moderately high. The relationship between delinquency and either measure of reading performance should tend to be underestimated because black boys, on average, have lower scores and are more likely to be delinquent. To compensate for the dependence of reading performance nonresponse on ethnicity, ethnicity will be entered in each analysis.

ANALYSIS

Both multiple and logistic regression techniques were used to analyze hypotheses 1 and 2. However, logistic regression was selected for reporting because the relative odds ratios produced by a logistic regression express the impact of risk factors more directly than does R^2 . The odds ratio is a measure of the strength of the association between two variables and is computed as the ratio of the probability of being delinquent to not being delinquent. For these analyses, lifetime delinquency seriousness was dichotomized by combining levels 0 (no delinquency), 1 (minor delinquency at home), and 2 (minor delinquency outside the home) into a nondelinquent category and levels 3 (moderate delinquency), 4 (serious delinquency), and 5 (multiple serious delinquencies) into a delinquent category. This categorization of delinquency was selected because it preserves the distinction between less serious offenses such as minor theft, vandalism, or fraud involving small amounts and more serious offenses such as

weapons possession, auto theft, and aggravated assault.

In addition, dichotomous variables (ethnicity, repeated grade, expected grade for age and neighborhood) were indicator coded (i.e., 0 versus 1) so as to compare the expected high risk category against the low risk category. Interval scaled variables (family SES, family involvement, reading achievement, teacher rated reading, and attention problems) were treated as continuous based on the results of tests of linearity with the logit function (Hosmer & Lemeshow, 1989). The grade effect, older grade, was represented by a linear trend coding.

RESULTS

Reading Performance, Grade Level, and Ethnicity Effects

The first two questions concerned whether older boys with poor reading performance would be more likely to be delinquent than younger boys with poor reading performance, and whether black boys with poor reading performance would be more likely to be delinquent than white boys with poor reading performance. Table 11.1 presents the univariate relationships between the independent variables and lifetime delinquency for these hypotheses.

Table 11.1

Univariate Relationships Between Model Variables and Delinquency (N = 1,239)

Variable	N	Delinquent (n = 574)	Odds ratio	p level
Neighborhood				
Lowest quartile ^a	347	55.9%		
Remainder	892	42.6%	1.71	< .001
Ethnicity				
White	551	38.8%		
Black	688	52.3%	1.73	< .001
Grade sample				
First grade ^a	398	28.9%		
Fourth grade	436	50.0%	2.46	
Seventh grade	405	59.5%	3.62	< .001
Repeated grade				
Never repeated ^a	709	36.7%		
Has repeated	530	59.2%	2.51	< .001
Expected grade for age				
On grade ^a	605	36.5%		
Off grade	634	55.7%	2.18	< .001

Univariate Relationships Between Model Variables and Delinquency (N = 1,239)

		Nonde- linquent	Delin- quent	Odds ratio ^b	p level
Family SES	M	37.7	34.7	1.28	< .001
	SD	12.6	12.4		
Family involvement	M	6.4	7.0	1.43	< .001
	SD	1.6	1.8		
Attention problems	M	1.6	1.9	1.88	< .001
	SD	0.4	0.4		
Reading achievement	M	50.3	41.3	1.56	< .001
	SD	21.4	19.8		
Teacher rated reading	M	3.0	2.4	1.77	< .001
	SD	1.1	1.0		

Note. ^aReference category for odds ratio. ^bOdds ratio is for a one standard deviation score decrease for family SES, reading achievement, and teacher rated reading and a one standard deviation score increase for family involvement and attention problems.

From Table 11.1 it can be seen that each of the independent variables is significantly associated with delinquency in the expected direction as measured by the odds ratio. For instance, the odds ratio for neighborhood is 1.71, which indicates that boys from the lowest quartile of neighborhoods are 1.71 times more likely to be delinquent than boys from neighborhoods in the upper three quartiles. Since grade is a trichotomous variable, the odds ratio for this variable was computed with the first grade sample as the reference group. Relative to the first grade sample, the fourth grade sample was 2.46 times more likely to be delinquent and the seventh grade sample was 3.6 times more likely to be delinquent.

The odds ratios for the interval scaled variables (family SES, reading achievement, teacher rated reading, family involvement, and attention problems) were computed for a one standard deviation change in the adverse direction. The adverse direction for family SES, family involvement, reading achievement, and teacher rated reading was low family SES, low family involvement, and low reading performance, respectively, while the adverse direction for attention problems was high attention problems. Table 11.1 shows that the likelihood of delinquency is significantly greater given low family SES, low family involvement, high attention problems, low reading achievement, and low teacher rated reading.

In preliminary analyses, it was found that entering reading performance, attention problems, and grade retention as

predictors of delinquency produced co-linearity problems. Because grade retention is more likely to be a consequence of low performance and/or attention problems rather than the converse, logistic regression was used to predict grade retention from reading performance and attention problems. The results showed that either of the reading performance measures and attention problems were significantly associated with measures of grade retention. For instance, using reading achievement and attention problems to predict repeated grade, the odds of grade retention was 2.06 for a one standard deviation decrease in reading achievement and 1.89 for a one standard deviation increase in attention problems. Depending on the measures of grade retention and reading performance used, the retention status of 69.5% to 71.8% of subjects was correctly identified by these two measures. Given the high, though not perfect, overlap between reading performance and attention problems, it was decided to eliminate grade retention as an explicit variable in subsequent analyses.

Parallel analyses were carried out using reading achievement as the measure of reading performance and then replicated with teacher rated reading as an alternative measure of reading performance. Two analyses were conducted for each reading performance measure. The first analysis was conducted without attention problems but with the terms for the hypothesized interaction between reading performance and grade and the hypothesized interaction between reading performance and ethnicity. This analysis tested the strength of the association

between education and delinquency and the interaction effects in the presence of the "third variables" of neighborhood, SES, family involvement, and ethnicity. The second analysis added attention problems to the just described analysis to draw a contrast between the traditional criminological model and a model incorporating attention problems. In both the first and second analyses, main effects were entered in the following order: neighborhood, older grade, SES, ethnicity, attention problems (second analysis only), family involvement, and the reading performance measure. After all main effects had been entered, the two interaction effects were entered simultaneously.

Reading achievement. The model identified for the first analysis (which excluded attention problems) is presented in Table 11.2. The global fit of the model, as measured by the C statistic (Hosmer & Lemeshow, 1989), indicated that the model fit adequately ($C = 4.39$, $df = 8$, $p > .75$).

Table 11.2

Logistic Regression Analyses of Delinquency with Reading Achievement as the Measure of Reading Performance but without Attention Problems (N = 1,239)

Variable	B	SE	Wald	df	p level	Odds
Disadvantaged neighborhood	.250	.159	2.48	1	.12	
Older grade	.770	.254	9.17	1	.003	1.72
Low family SES	-.010	.005	3.35	1	.07	
Ethnicity	-.096	.321	0.09	1	.77	
Low family involvement	.137	.036	14.33	1	.001	1.27
Low reading achievement	-.017	.005	13.54	1	.001	1.45
Older grade by low achievement	.002	.005	0.11	1	.74	
Ethnicity by low achievement	.007	.006	1.35	1	.25	
Constant	-.124	.406	0.09	1	.76	

Note. Odds ratios were computed on the basis of a one standard deviation score decrease for family SES and reading achievement and a one standard deviation score increase for family involvement. The odds ratio for grade effect is for the just-higher grade relative to the just-lower grade.

Table 11.2 presents the regression coefficients and their associated standard errors, significance levels, and odds ratios for the variables in the first analysis. The probability of delinquency was significantly associated with older grade, family involvement, and reading achievement. The magnitude of the association of each variable with delinquency, given by the relative odds ratios in Table 11.2, were computed on the basis of

a one standard deviation change in the adverse direction. Because older grade was modeled by a linear trend, the odds ratio for this variable indicates that the fourth grade sample relative to the first grade sample and the seventh grade sample relative to the fourth grade sample were 1.72 times more likely to be delinquent. The likelihood of delinquency for the seventh grade sample relative to the first grade sample was 1.72 squared or 2.96. Also, lower family involvement raised it 1.27 times, and lower reading achievement raised it 1.45 times.

It was also found that after neighborhood had been entered, the addition of ethnicity added no further information and that, in fact, ethnicity blocked the effect of neighborhood. Finally, neither the hypothesized interaction between older grade by achievement nor the hypothesized interaction between ethnicity by achievement) was significant.

The results for the second analysis, which assessed the effect of adding attention problems to the first analysis, is presented in Table 11.3. The global fit of the model was adequate ($\chi^2 = 6.19$, $df = 8$, $p > .50$). The results of this analysis indicate that delinquency likelihood is dependent on older grade, family SES, family involvement, and attention problems. In comparison to the first analysis, the addition of attention problems reduced the effect of reading achievement to nonsignificance. With the relative odds ratios computed as before, the results for this analysis showed that the likelihood of delinquency is 2.07 times higher for the just-higher grade

relative to the just-lower (e.g., fourth grade sample versus the first grade sample), 1.19 times higher for lower family SES, 1.19 times higher for lower family involvement, and 1.88 times higher for higher attention problems. Finally, the significance of neither the grade by achievement nor ethnicity by achievement interactions were changed by the addition of attention problems to the model.

Table 11.3

Logistic Regression Analyses of Delinquency with Reading Achievement as the Measure of Reading Performance and with Attention Problems (N = 1,239)

Variable	B	SE	Wald	df	p level	Odds
Disadvantaged neighborhood	.251	.164	2.34	1	.13	
Older grade	1.030	.265	15.17	1	.001	2.07
Low family SES	-.014	.005	6.24	1	.01	1.19
Ethnicity	.101	.332	.09	1	.76	
High attention problems	1.399	.169	68.89	1	.001	1.88
Low family involvement	.102	.038	7.45	1	.01	1.27
Low reading achievement	-.001	.005	.01	1	.92	
Older Grade by low achievement	.000	.005	.00	1	.95	
Ethnicity by low achievement	.003	.006	.20	1	.65	
Constant	-2.952	.543	29.58	1	.001	

Note. Odds ratios were computed on the basis of a one standard deviation score decrease for family SES and a one standard deviation score increase for family involvement and attention problems. The odds ratio for grade effect is for the just-higher grade relative to the just-lower grade.

The two sets of analyses show that irrespective of whether attention problems are entered, age indexed effects represented by older grade and family involvement contributed to explaining delinquency. The difference was that once attention problems was entered, the contribution of reading achievement was suppressed while family SES was enhanced.

Teacher rated reading. Table 11.4 presents the model identified for the first analysis when teacher rated reading was used as the measure of reading performance and attention problems was excluded. The overall fit of this model to the data was adequate ($\chi^2 = 4.61$, $df = 8$, $p > .75$).

Table 11.4

Logistic Regression Analyses of Delinquency with Teacher Rated Reading as the Measure of Reading Performance but without Attention Problems (N = 1,239)

Variable	B	SE	Wald	df	p level	Odds
Disadvantaged neighborhood	.221	.161	1.89	1	.17	
Older grade	1.052	.316	11.10	1	.001	2.10
Low family SES	-.008	.005	2.42	1	.12	
Ethnicity	.166	.370	.20	1	.65	
Low family involvement	.126	.037	11.88	1	.001	1.25
Low teacher rated reading	-.439	.091	23.31	1	.001	1.59
Older Grade by low teacher rated reading	-.068	.109	.39	1	.53	
Ethnicity by low teacher rated reading	.013	.125	.01	1	.92	
Constant	.298	.428	.48	1	.49	

Note. Odds ratios were computed on the basis of a one standard deviation score decrease for family SES and teacher rated reading and a one standard deviation score increase for family involvement. The odds ratio for grade effect is for the just-higher grade relative to the just-lower grade.

Table 11.4 presents the regression coefficients and their associated standard errors, significance levels, and odds ratios for the variables in the analysis without attention problems. The results show that delinquency was significantly associated with older grade, family involvement, and teacher rated reading. The odds ratios showed that the likelihood of delinquency was 2.10 times more likely in the higher grade relative to the lower grade, 1.25 times higher for lower family involvement, and 1.59 times higher for lower teacher rated reading. After neighborhood had been entered, the addition of ethnicity was found to reduce the effect of neighborhood to nonsignificance. Finally, neither of the hypothesized interactions was significant.

The results for the second analysis, which assessed the effect of adding attention problems, is presented in Table 11.5. The global fit of the model was adequate ($\chi^2 = 10.44$, $df = 8$, $p > .10$). The results of this analysis indicated that older grade, family SES, family involvement, and attention problems are significantly associated with delinquency. Thus, the addition of attention problems reduced the effect of teacher rated reading to nonsignificance. Computation of the relative odds shows the likelihood of delinquency to be 2.39 times more likely in the higher grade relative to the lower grade, 1.16 times higher for lower family SES, 1.19 times higher for lower family involvement, and 1.73 times higher for higher attention problems. Finally, neither of the hypothesized interactions was significant when attention problems was added to the analysis.

Comparing the two sets of analyses on teacher rated reading, the results show that age indexed effects represented by older grade and family involvement all contributed to the explanation of delinquency. Thus, these results are identical to those obtained when reading achievement was used as the measure of reading performance. In the analyses that considered teacher rated reading, the addition of attention problems suppressed the effect of teacher rated reading. This result, too, parallels that of the earlier analyses in which attention problems suppressed the effect of reading achievement.

Table 11.5

Logistic Regression Analyses of Delinquency with Teacher Rated Reading as the Measure of Reading Performance and with Attention Problems (N = 1,239)

Variable	B	SE	Wald	df	p level	Odds
Disadvantaged neighborhood	.249	.164	2.29	1	.13	
Older grade	1.230	.324	14.45	1	.001	2.39
Low family SES	-.012	.005	4.63	1	.03	1.16
Ethnicity	.260	.376	.48	1	.49	
High attention problems	1.216	.178	46.44	1	.001	1.73
Low family involvement	.101	.038	7.28	1	.01	1.19
Low teacher rated reading	-.116	.103	1.27	1	.26	
Older grade by low teacher rated reading	-.093	.111	.69	1	.41	
Ethnicity by low teacher rated reading	-.026	.127	.04	1	.84	
Constant	-2.395	.590	16.46	1	.001	

Note. Odds ratios were computed on the basis of a one standard deviation score decrease for family SES and a one standard deviation score increase for family involvement and attention problems. The odds ratio for grade effect is for the just-higher grade relative to the just-lower grade.

Delinquency Seriousness

The third question concerns whether delinquency seriousness has an ordinal relationship with reading performance. That is, are boys with the lowest reading performance scores involved in the most serious forms of delinquency, and are boys with higher reading scores involved in less serious forms of delinquency? This was tested by computing Spearman rank order correlations between the six ordinally scaled levels of the delinquency seriousness construct and the reading performance measures by grade for black and white boys. The results are presented in Table 11.6

Table 11.6
Spearman Rank Order Correlations Between Reading Performance Measures and Delinquency
Before and After Controlling for Attention Problems

Correlation	White			Black		
	Grade 1 (n = 174)	Grade 4 (n = 202)	Grade 7 (n = 175)	Grade 1 (n = 224)	Grade 4 (n = 234)	Grade 7 (n = 230)
Reading achievement						
Delinquency, Reading	-.22**	-.30***	-.16*	-.04	-.19*	-.17**
Delinquency, Reading controlling for Attention problems	-.03	-.08	-.04	-.00	-.04	-.05
Teacher rated reading						
Delinquency, Reading	-.21**	-.31***	-.20**	-.10	-.32***	-.22***
Delinquency, Reading controlling for Attention problems	-.01	-.09	-.06	-.09	-.14*	-.04

Note. * $p < .05$; ** $p < .01$; *** $p < .001$, one tailed

The correlation between reading achievement and delinquency was significant within each grade for white boys (first grade $r = -.22$, $p < .01$; fourth grade $r = -.30$, $p < .001$; seventh grade $r = -.16$, $p < .05$) but only for the fourth and seventh grade samples for black boys (first grade $r = -.04$; fourth grade $r = -.19$, $p < .05$; seventh grade $r = -.17$, $p < .01$) by a one tailed test. Tests between the correlations for white and black boys in the same grade showed no differences. Likewise, tests of the correlations between adjacent grades within ethnic group found no significant differences. The pattern of correlations observed for teacher rated reading and delinquency among both white boys and black boys was identical to that observed for reading achievement.

The results of first two hypotheses showed that attention problems was an important correlate of delinquency. Thus, to examine the possibility that the ordinal relationship between reading performance and delinquency was an artifact of the correlation of attention problems with both reading performance and delinquency, attention problems was partialled from the correlation between reading performance and delinquency seriousness. These results are also presented in Table 11.6.

The effect of controlling for attention problems was to reduce the correlation between either of the reading performance measures and delinquency seriousness to nonsignificance -- except for the correlation between teacher rated reading and delinquency for black boys in the fourth grade sample ($r = -.14$), which remained statistically significant. However, as the corresponding

correlation with reading achievement was substantially smaller ($r = -.04$), the single significant correlation may be the result of sampling variation.

The results in Table 11.6 indicate that the relationship between reading performance and delinquency is an artifact of the correlation with attention problems. However, a different view emerges if the variance that delinquency shares with reading performance and attention problems is divided into variance that is due to reading performance alone, attention problems alone, and both reading performance and attention problems (Appelbaum & McCall, 1983). If each of the three variance components is computed by grade and ethnicity for both reading measures, and the resulting 12 values for each variance component are averaged together, the resulting means give a picture of the contribution of each component. The resulting data showed that the unique contribution of achievement was quite small ($M = .005$; $SD = .005$), while that of attention was much larger ($M = .079$; $SD = .025$) -- as would be expected from the partial correlations. However, the unique variance of both reading and attention problems was nearly half as large as that of attention problems alone ($M = .038$; $SD = .028$). Thus, reading makes its contribution to delinquency through the joint association with attention problems.

In summary, the results offered support for an ordinal relationship between reading performance and delinquency seriousness in five out of six comparisons. However, after

attention problems had been controlled, the ordinal relationship disappeared for boys of both ethnic groups in all but one of the comparisons.

DISCUSSION

The present study examined the relationship between two measures of reading performance and lifetime delinquency for three grade cohorts of boys. Although this study had the benefits of large, randomly selected, and representative samples, several methodological and conceptual limitations should be noted. Most important of these was that this study experienced a differential nonresponse rate on some study variables that was associated with other variables used in this study. The differential loss of data for first grade boys, seventh grade boys, and black boys probably results in underestimates of the true relationships -- especially for blacks. It is also possible that the three samples differ as a result of the cumulative effects wrought by migration to private schools and out-of-district schools. The effects of these processes on reading and delinquency remains unknown. Again, further work is needed to understand whether out-migration from the study area is random with respect to delinquency -- though there is certainly reason to believe it is not (Wolfgang et al., 1972). Another limitation is that, although several important third variables (e.g., SES, neighborhood, and family involvement) were included in the model, an intelligence measure was not.

It was expected that poor reading performance would increase a boy's risk for delinquency. The results indicate that poor

reading performance made a contribution, but only if attention problems was not considered. When attention problems was included in the model, reading performance no longer made a contribution to the explanation of delinquency. It was also expected that boys with poor reading performance in the seventh grade sample would be more likely to be delinquent than similar boys in the first grade sample. Instead, it was found that the relationship between reading and delinquency was constant across the three samples irrespective of whether attention problems was included. These results held irrespective of whether CAT Reading Achievement or Teacher Rated Reading were considered. To our knowledge, such findings have not been reported in the literature. Thus, we believe these results may hold important implications for both delinquency theory and educational interventions for delinquency.

It was expected that the relationship between reading and delinquency would depend on ethnicity. However, quite different results were found. After accounting for important background influences, in particular, neighborhood, it was found that the likelihood of delinquency did not depend on ethnicity. Also, no support was found for the expected interaction between ethnicity and reading performance. These findings are particularly important because they shed light on the origins of the often reported association between ethnicity and delinquency (e.g., Tracy et al., 1990; Hirschi, 1969; Huizinga et al., 1991).

We found relatively consistent evidence for an ordinal relationship between reading performance and delinquency in the

absence of controls for attention problems. It was expected that boys with the lowest levels of reading performance would be most likely involved in the most serious forms of delinquency, while boys with progressively better reading performance would be involved in progressively less serious delinquency. With the exception of the results for black boys in the first grade sample, the hypothesis was supported. However, when attention problems' joint relationship with both reading performance and delinquency was taken into account, reading performance failed to sustain a unique contribution to delinquency; rather, it contributed substantially to delinquency through its joint association with attention problems.

Taken as a whole, the results of this study have implications for both delinquency theory and delinquency interventions. With respect to theory, contemporary theories of delinquency (e.g., Hawkins & Weis, 1985; Hawkins & Lishner, 1987; Elliot, Ageton, & Canter, 1979) stress the causal relationship wherein poor school performance or school failure (i.e., grade retention) leads to delinquency through intervening variables such as attachment to school, commitment to conventions, frustration, or alienation. Reasoning quantitatively from the three variable educational performance-intervening variable-delinquency model leads to predictions of an increasing association between reading and delinquency with increasing age.

The results of this study suggest that delinquency theorists have not cast a sufficiently wide theoretical net and, as a

result, have failed to include problems of attention regulation as a predictor of delinquency. However, including attention problems as a predictor presents two challenges for contemporary theories of delinquency. The first challenge is describing how attention problems relates both to other domains of predictive or concurrent variables (e.g., SES, intelligence, behavior problems) and to delinquency. A related aspect of this challenge is the need to specify how attention problems might be related to developmental changes in delinquency. This understanding is currently hampered because few theories of delinquency incorporate a developmental framework. The work of Hawkins and Lishner (1987) is an exception, but see Le Blanc and Loeber (1990) for discussion of this point.

The second challenge for delinquency theorists is developing a fuller understanding of the role of educational performance and, more broadly, schooling in the development of delinquency. Current theories suggest that educational performance is a key variable. However, the present study suggests that educational performance has no role in the development of delinquency once attention problems has been accounted for. Such an assessment is premature on several points. First, the present study provides no direction on the important question of whether poor school performance is a consequence of attention problems or whether both have a common antecedent (McGee & Share, 1988). Second, these results indicate that educational performance is important because it has a substantial co-occurrence with attention

problems. Third, the school defines a setting where not only education occurs but also other important processes such as the formation of relationships with peers and adults.

These results also pose some challenges to the place granted ethnicity in delinquency theories. Ethnicity has played the role of an indicator variable that marked out a group difference but that provided little understanding of the origin of the differences. These results indicate that the focus should be less on ethnicity and more on the settings in which different boys and their families live. The study of Peeples and Loeber (1992) underscores this point as they found that black boys living in non-underclass neighborhoods were no more delinquent than white boys of the same age. The failure to find a significant interaction between ethnicity and reading performance also makes the same point. Thus, future efforts might profitably be directed toward identifying the especially damaging dimensions of underclass neighborhoods and those variables that might protect boys who must live in those neighborhoods.

From the point of view of intervention and prevention efforts, a theory or model should give guidance as to when, where, and how to intervene. This study offers several points of guidance to delinquency intervention and prevention efforts. The first point is to indicate that intervention efforts should target children with attention problems as well as children with reading problems or other academic problems. To the extent that attention problems emerge in the preschool years for at least

some boys, early intervention and preschool education programs (Berruta-Clement, Schweinhart, Barnett, & Weikart, 1987) might well consider targeting attention problems. Although this study found no relationship between reading performance and delinquency, failing to learn to read has important and serious later consequences for individuals. Even in the short term, there are important reasons for intervening with reading problems since learning to read is the principal educational activity of the early grades and by the third and fourth grades, children are expected to begin to apply reading as a skill to increase their store of knowledge in other areas (Chall, Jacobs, & Baldwin, 1990). Lastly, this study suggests that intervention programs should pay special attention to the areas where children live and, in the process, provide intervention components that address the deleterious effects of those neighborhoods.

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CHAPTER 12

**FAMILIES, RACE AND JUVENILE DELINQUENCY:
A STUDY OF NEIGHBORHOOD CONTEXTS**

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Pittsburgh Youth Study

Individually measured factors and neighborhood context were related to juvenile delinquency in a community sample of 506 urban, public school boys. Neighborhood context was measured with an objective, census-based score which classified neighborhoods as underclass or not underclass. When black youths and white youths were compared without regard to neighborhood context, black youths were more frequently and more seriously delinquent than white youths. When black youths did not live in underclass neighborhoods, their delinquent behavior was very similar to that of the white youths.

Hierarchical, stepwise multiple regression analyses showed that for black youths, living in an underclass neighborhood was significantly related to frequency and seriousness of delinquency after accounting for individual characteristics, family background, and parental supervision. This study points to the importance of including neighborhood context when addressing the social problems of black youths.

INTRODUCTION

Several decades of research have not produced a consensus on the relationship between ethnicity, neighborhood and juvenile delinquency. Most studies indicate that black youths have significantly more contact with the juvenile justice system than white youths. Many urban black youths live in underclass neighborhoods with concentrated poverty and other social problems. What is less clear, however, is whether black youths who do not live in underclass neighborhoods differ in their offending from white youths.

Many individual and family-level correlates of delinquency apply to both black youths and white youths. What remains to be clarified is to what extent living in an underclass neighborhood contributes to the explanation of juvenile delinquency over and above these known individual and family correlates.

ETHNIC DIFFERENCES AND SIMILARITIES IN OFFENDING

While black youths are over-represented in official statistics, it is unclear whether this is strictly a reflection of bias in judicial processing or whether it reflects a real difference in offending. Early studies of self-reported delinquency showed that there were no ethnic differences (Gould, 1969; Williams and Gold, 1972). Other studies showed that a larger percentage of blacks compared to whites were high frequency offenders and reported more predatory crimes against persons (Elliot and Ageton, 1980). In short, the evidence is

still inconclusive concerning ethnic differences in offending (Siegel and Senna, 1991).

DO NEIGHBORHOODS INFLUENCE ETHNIC DIFFERENCES IN OFFENDING?

Ethnic similarities or differences in offending may be partially attributed to residence in certain neighborhoods. For example, Shaw and McKay's classic ecological study (1972) showed that although blacks had higher rates of official delinquents than other ethnic groups, these rates varied by area of residence (as they did for other ethnic groups). One of the limitations of their study was its reliance on official rates of delinquency, measures which do not simply reflect behavior but also reflect the processing of offenders. The issue of neighborhood residence needs to be addressed with individual measures of delinquency.

Accounting for neighborhood residence is particularly crucial when studying ethnic differences in offending since many urban blacks live in neighborhoods which are ecologically very different from the neighborhoods in which most urban whites live. Underclass neighborhoods are characterized by high rates of welfare use and poverty, single mother homes, non-marital births and high rates of male joblessness (Wilson, 1987). They are communities which have experienced epidemics of social problems (Crane, 1991). If one were to compare urban neighborhoods in a linear fashion, one cannot assume small, incremental increases in social problems to be a function of small, incremental decreases in neighborhood quality. It is at the bottom of the distribution of neighborhood quality that a "jump" in serious social problems occurs (see Crane, 1991 and Hogan and Kitagawa, 1985).

THE EXPLANATION OF JUVENILE DELINQUENCY: NEIGHBORHOOD AND INDIVIDUALLY-MEASURED INFLUENCES.

Empirical studies of juvenile delinquency have been of two general types, individual-level and social-level studies. In the first type, the individual is the unit of analysis and explanations for delinquency are sought at the individual or family level. Cross-sectional and longitudinal research have uncovered stable correlates and predictors of delinquent behavior. One of the most important individual predictors is hyperactivity (impulsivity, poor concentration/attention, and restlessness) (Farrington et al., 1990; Farrington, 1992) and one of the most important family predictors is poor parental supervision (Farrington, 1992; Loeber and Stouthamer-Loeber, 1986). Family background variables such as SES and single parent family structure appear less important (Loeber and Stouthamer-Loeber, 1986) and are mediated by family management practices such as monitoring and supervision (Larzelere and Patterson, 1990). Individuals and families are only rarely studied in the context of their neighborhoods (for an exception, see Laub and Sampson, 1988). Studies of urban black families in particular would be incomplete without accounting for neighborhood context.

In the second type of study, the unit of analysis is a census tract, neighborhood, city or larger geographic area and researchers seek explanations for rates of delinquency in the physical or social communities in which offenders live. Shaw and McKay's Chicago study (1972) found that high delinquency areas

were characterized by physical deterioration, low rentals, high rates of families on relief, high rates of population mobility and high rates of other social problems. They theorized that these conditions produced "social disorganization" which in turn accounted for the high rates of official juvenile delinquents. Ecological studies have been criticized for their reliance on official data and for their inability to assess the effects of community on individual behavior.

Only a few studies have combined both levels of analysis in explaining individually measured delinquency. Simcha-Fagan and Schwartz (1986) examined four dimensions of community effects (residential stability, economic level, community organization participation, and criminal subculture) on three measures of delinquency for 553 urban adolescent males. They found that these dimensions together accounted for substantial amounts of between-community variance in aggregated measures of official delinquency, self-reported delinquency, and severe self-reported delinquency -- 80%, 52% and 26%, respectively. But when individual levels of offending were examined, the amount of variance explained by these community-level dimensions was reduced to between 2% and 4%. The researchers concluded that "community effects on delinquency are to a large extent mediated" by other family-level and individual-level variables.

In a similar vein, Gottfredson et al. (1991) analyzed the effects of two community dimensions, community disorganization and affluence/education (census based factor scores), separately

for male and female students. They found for males (n=1858) that higher affluence/education was positively related to self-reported theft and vandalism but not to interpersonal aggression or drug involvement. Higher community disorganization was related only to interpersonal aggression, but this relationship was reduced when individual background measures were accounted for (specifically, parent education, student's age and race). It was further reduced when mediating theoretical variables such as peer influence, parental supervision, and school attachment were included.

Although both studies dealt with minority groups (54% black in the Simcha-Fagan and Schwartz study and 71% in the Gottfredson et al. study), neither one examined whether the impact of neighborhood had similar effects for different ethnic groups. As Shaw and McKay noted (1972), it is impossible to reproduce for whites the conditions under which blacks live. This is just as true today: urban whites do not to any appreciable degree live in underclass neighborhoods.

AIMS OF THE STUDY

The major aim of this study is to see if residence in an underclass neighborhood makes a significant contribution to the explanation of juvenile delinquency after accounting for individual factors which are associated with underclass neighborhoods (self-selection factors such as poverty and single-parent homes) and factors which are associated with delinquency.

The central questions addressed here are:

1) If, in general, more black boys are more frequently and more seriously delinquent than whites, does this remain true when black boys do not live in underclass neighborhoods?

2) When individual and family factors are accounted for, does boys' residence in underclass neighborhoods add to the explanation of delinquency for black boys?

METHODS

SUBJECTS: The subjects for this study were 506 Pittsburgh Public School boys who are the oldest of three grade cohorts in the Pittsburgh Youth Study.

The data for the present study (n=506) are based on the initial screening assessment and on the first wave of follow-up interviews six months after the screening when the boys were in the beginning of their 8th grade year.

MEASURES AND CONSTRUCTS:

Seriousness of delinquent behavior. A self-reported delinquency scale, adapted from Elliott, Huizinga, and Ageton (1985) formed the basis of this measure. Boys were classified according to five levels of seriousness based on this scale, their caretaker's report and their teacher's report at the initial screening and at the first wave (Stouthamer-Loeber et al., 1992). If any of the three informants reported that a behavior occurred during the past six months or ever, the boy was classified according to the most serious act reported. The five

classification levels, based on the work of Wolfgang et. al. (1985), are as follows: 1) no reported delinquency or minor delinquency in the home (theft or vandalism), 2) other minor delinquency (minor theft, vandalism or fraud that occurred outside of the home), 3) moderately serious delinquency (theft of items over \$5.00, carrying weapons, joyriding, or gangfighting), 4) serious delinquency (car theft, breaking and entering, strongarming, aggravated assault, forced sex, or selling drugs) and 5) varied, serious delinquency (two or more different Level 4 acts).

Frequency measures of delinquent behavior. These measures were based on the sum of the two half yearly self-reports of the youth only administered at screening and follow-up. Omitted were items which were not part of the seriousness classification measure (see Table 12.1 for the specific items). The two frequency measures are a serious delinquency frequencies score, limited to items constituting level 4 of the seriousness classification measure, and a total frequencies score, including all of the self-reported items in the seriousness classification measure. Boys were then classified as 0) no reported delinquency, 1) 1 reported act, 2) 2-5 reported acts and 3) 6 or more reported acts.

Table 12.1 Self-Reported Delinquency Items*

Carried a weapon
 Purposely damaged property
 Purposely set fire
 Avoided paying
 Entered building to steal (S)
 Stole \$5.00 or less
 Stole between \$5.00 and \$50.00
 Stole \$50.00 or more
 Shoplifted
 Snatched purse or picked pocket
 Stole from a car
 Bought, sold, held stolen goods
 Joyriding
 Car theft (S)
 Illegal checks/fake money
 Credit card without permission
 Cheat when selling
 Attacked with weapon to hurt (S)
 Illegal checks/fake money
 Use of force to get money (S)
 Gang fight
 Hurt someone to have sex (S)
 Sex against other's will (S)
 Sold marijuana (S)
 Sold hard drugs (S)

* adapted from Elliott, Huizinga, and Ageton, 1985

(S) items included in serious frequency measure

Hyperactivity. This construct consisted of 14 items from the Child Behavior Checklist and the Teacher Report Form (Achenbach and Edelbrock, 1983) which measured the extent to which a boy was restless, impulsive, inattentive and irresponsible. It was based on the combined reports of the boy's parent and teacher. The reliability was high ($\alpha = .85$).

Two family background measures were included as "self-selection" factors which are associated with underclass neighborhood residence:

Family poverty/welfare use. A family was classified as poor if the parent reported, at the time of the screening, receiving welfare or public assistance. All other families were classified as not poor.

Single-parent home. Boys were classified as living with a single-parent if the primary caretaker reported no partner. All other boys were classified as living with two parents whether or not the parents were married.

Parental supervision of outside activities. This construct was based on the report of the boy (4 items) and his parent (5 items). The items were summed and mean substitution was used if an item was missing. The parents were asked if their son left a note when he was out; did the parent know son's companions; did the son know how to get in touch with the parent if the parent was out; did the parent know when the son would come home; and was it important to the parent to know what the son was doing. The child was asked the first four questions. The reliability for this construct was acceptable ($\alpha=.67$).

Underclass index and Neighborhood classification. Pittsburgh is a city of neighborhoods, often visibly defined by geographic contours (rivers, hills and gorges) and frequently containing distinct ethnic groups. Pittsburghers identify with their neighborhoods and when asked where they live, a typical Pittsburgher might answer "I live in Shadyside" or "I live in Homewood," whichever neighborhood they hail from.

While Pittsburgh has not "ghettoized" to the same extent as other large American cities, it is, according to the Department of City Planning's Pittsburgh Housing Study (PHS) nevertheless among the more highly segregated cities in 1980 (PHS, 1991, p.II.4). blacks are clustered in a relatively small number of neighborhoods and 95% of the city's neighborhoods do not reflect the city's proportion of black householders (PHS, 1991, p.II.3).

Pittsburgh consists of 88 officially recognized neighborhoods, each composed of 1 to 7 census tracts. These neighborhoods tend to be homogenous with respect to most social and demographic characteristics (PHS, 1991, p.II.2). We developed an index to describe and classify these neighborhoods and to capture Pittsburgh's underclass neighborhoods. Based on the literature of the "black urban underclass" (Wilson, 1987), six ecological variables (most of them based on 1980 census data¹) were entered into a principal components factor analysis and only one factor was extracted, which we named "underclass." (See Table 12.2 for variable definitions and sources.) The underclass factor explained 76.9% of the common variance in public assistance, female-headed families, family poverty, families with no one employed, male joblessness and out of wedlock births. Table 12.3 reports the factor loadings.

Summed, standardized factor scores, based on these six variables, were then assigned to each of Pittsburgh's neighborhoods. If a neighborhood scored higher than one standard deviation above the mean, it was classified as "underclass." If

a neighborhood scored lower than this, it was classified as "not underclass." Table 12.4 compares the 15 underclass² and 73 not-underclass neighborhoods on the six variables, each of which is interpreted as "the percentage of households or families or households in a neighborhood who possess the characteristic." Also reported is the percentage of assisted (public) housing and the percentage of residents who were black in each category of neighborhood. While public housing and ethnicity were not included in the measure, it is important to note that underclass neighborhoods have a high percentage of housing which is government assisted and that these neighborhoods are almost exclusively black. Because Pittsburgh's neighborhoods are highly segregated, it was not possible to categorize neighborhoods in such a way that underclass neighborhoods included a sufficient number of white youths for statistical analyses. When a less extreme criterion was used to define underclass neighborhoods, nearly all of the black subjects were then classified as underclass, leaving us with the opposite problem of too few blacks in non-underclass neighborhoods. The neighborhoods for each of the boys in the present study were identified based upon the boy's address at the time of the screening. Each boy was then assigned that neighborhood's factor score and classification (underclass or not underclass).

¹ 1990 census data were not available at the time this study was conducted. The initial interviews with the subjects occurred in 1986, an approximate midpoint between the availability of 1980 and 1990 census data.

Table 12.2 Definitions of Underclass Index Variables

Male joblessness: the percentage of males, ages 16 and over who were not in the armed forces and who were not employed in the civilian labor force. Source: U.S. Census, 1980, Table P-10.

Female-headed families: the percent of all families in a neighborhood which were female-headed. U.S. Census, 1980, Table P-1.

Non-marital births: the percentage of all births in a neighborhood which were to unmarried women. Allegheny County Health Department, "Community Profile Update," Table 2-A, 1982.

Family poverty: the percentage of all families whose 1979 income was below the poverty line. U.S. Census, 1980, Table P-11.

Families with no one employed: the percentage of all families in a neighborhood with no workers. U.S. Census, 1980, Table P-10.

Welfare use: the percentage of all households in a neighborhood whose source of income in 1980 was public assistance. Health and Welfare Planning Association, "1984 Community Profiles: A Descriptive Picture of Communities in Allegheny County, Pittsburgh, PA, 1984.

Percent Black: the percent of individuals in a neighborhood who were black. U.S. Census, 1980. Tables P-3 and P-9.*

Percent homes government assisted: the percent of all households units in a neighborhood which were government assisted. 1983. This included housing projects, housing for the elderly, and Section 8 housing. Department of City Planning, "A Profile of Change: 1970-1980." Pittsburgh, PA, (January 1984).*

*Not included in underclass index

Table 12.3 Factor Loadings

<u>Neighborhood Variable</u>	<u>Factor loadings</u>
Family poverty	.94
Public assistance	.92
Female headed-families	.92
Families with no one employed	.89
Non-marital births	.84
Male joblessness	.73

Table 12.4

Underclass Neighborhood Indicators (Mean Percentages) by
Neighborhood Classification

	<u>Neighborhood Classification</u>	
	<u>Underclass</u>	<u>Not underclass</u>
<u>Indicators (percent)</u>	<u>(n=15)</u>	<u>(n=73)</u>
Family poverty	40.20	9.25
Welfare use	42.13	12.63
Female-headed families	66.58	23.97
Families with no one employed	40.49	18.51
Non-marital births	69.10	26.30
Male Joblessness	51.85	28.64

Assisted housing*	49.12	5.93
Black*	84.44	17.83

*not included in Underclass Index

RESULTS

Description of Sample

The sample contained 219 white youths and 290 blacks youths. Whereas 118 or 40.7% of the black youths lived in underclass neighborhoods, only 5 or 2.3% of the white youths lived in these neighborhoods. We were unable to classify 27 of the youths in terms of neighborhood. Even when black youths did not live in underclass neighborhoods, they still lived in neighborhoods which compared poorly to the neighborhoods in which the white youths lived.

Table 12.5 shows the distribution of the sample, by ethnicity, on the independent variables. The mean underclass factor scores were significantly higher for black than white youths, with very little variance in the scores for whites and rather substantial variance for blacks. The youths ranged in age from 12 to 16 (only two youths were 16 year olds) with a mean age of 13.4. black youths were slightly older than the white youths, with mean ages of 13.5 and 13.1, respectively. This may be because some of the black youths began school at an older age than the white youths and/or because more of them had failed a grade.

²The underclass neighborhoods are Arlington Heights, Bedford Dwellings, California-Kirkbride, Lower Hill, Fairywood, Homewood North, Homewood South, Homewood West, Larimer, Middle Hill, North Shore, Northview Heights, St. Clair, Terrace Village, and West Oakland.

A greater percentage of black youths lived in poor/welfare families, in single-parent families and were poorly supervised compared to white youths. There were no differences between black and white youths for hyperactivity.

As expected, there was a greater percentage of poor/welfare families and single-parent families living in underclass neighborhoods compared to non-underclass neighborhoods ($\chi^2_{(1)}=35.11$, $p<.001$ and $\chi^2_{(1)}=22.55$, $p<.001$, respectively).

THE ANALYSES

We first verified that more black youths were frequently and seriously delinquent than white youths. As reported in Table 12.6, this was true for all 3 measures. Twice as many black boys had engaged some time during their life in varied, serious forms of delinquency than white boys (10.1% vs. 4.9%). The number of black boys who committed frequent, serious acts in the past year (6 or more acts) was six times larger than for white boys (12.6% vs. 2%). If all self-reported delinquent acts were taken into account, ethnic differences were smaller, but still significant.

Next we examined whether or not ethnic differences in offending remained when black youths who did not live in underclass neighborhoods were compared to white youths. The differences for seriousness and for the frequencies of serious acts were not significant. Black youths, however, reported a higher total frequency of delinquent acts than white youths. But, as Table 12.7 shows, fewer black youths reported no

Table 12.5

Ethnic Differences on Independent Variables (n=479)^a

<u>Variable</u>	<u>All boys</u> (n=479)	<u>Whites</u> (n=219)	<u>Blacks</u> (n=272)	<u>t/X²</u>
Mean neighborhood factor score (<u>SD</u>)	0.3 (1.1)	-0.5 (.5)	0.9 (1.1)	19.54***
Mean age (<u>SD</u>)	13.4 (.9)	13.1 (.8)	13.5 (.9)	4.68***
Percent poor/welfare	36.5	21.8	46.9	42.81***
Percent single-parent	47.4	26.9	61.4	60.63***
Poor supervision (<u>SD</u>)	11.9 (2.8)	11.3 (2.7)	12.4 (2.8)	4.38***
Hyperactive (<u>SD</u>)	10.7 (3.3)	10.4 (3.4)	11.0 (3.2)	1.70

^asubjects without addresses excluded

***p<.001

Table 12.6 Delinquency by Ethnicity

Delinquency (%)	Whites (n=204)	Blacks (n=278)	χ^2
Delinquency seriousness classification			18.45***
None/minor at home	31.9	19.4	
Minor outside home	21.1	23.0	
Moderately serious	27.5	22.3	
Serious	14.7	24.8	
Varied, serious	4.9	10.1	
Frequency of serious delinquent acts			8.52*
None	87.3	76.5	
1 act	6.4	10.8	
2-5 acts	4.9	9.0	
6 or more acts	2.0	12.6	
Frequency of total delinquent acts			17.68***
None	41.7	27.4	
1 act	6.9	16.2	
2-5 acts	26.0	24.2	
6 or more acts	25.5	32.1	

*p<.05 ***p<.001

Table 12.7
Delinquency by Ethnicity in Non-Underclass Neighborhoods

Delinquency (%)	Whites (n=202)	Blacks (n=169)	χ^2
Delinquency seriousness classification			7.32
None/minor at home	31.7	23.1	
Minor outside home	20.8	29.6	
Moderately serious	27.7	22.8	
Serious	14.9	17.8	
Varied, serious	5.0	7.1	
Frequency of serious delinquent acts			2.09
None	87.1	81.7	
1 act	6.4	9.5	
2-5 acts	4.5	6.5	
6 or more acts	2.0	2.4	
Frequency of total delinquent acts			16.62***
None	41.6	30.2	
1 act	6.9	20.7	
2-5 acts	25.7	24.3	
6 or more acts	25.2	24.9	

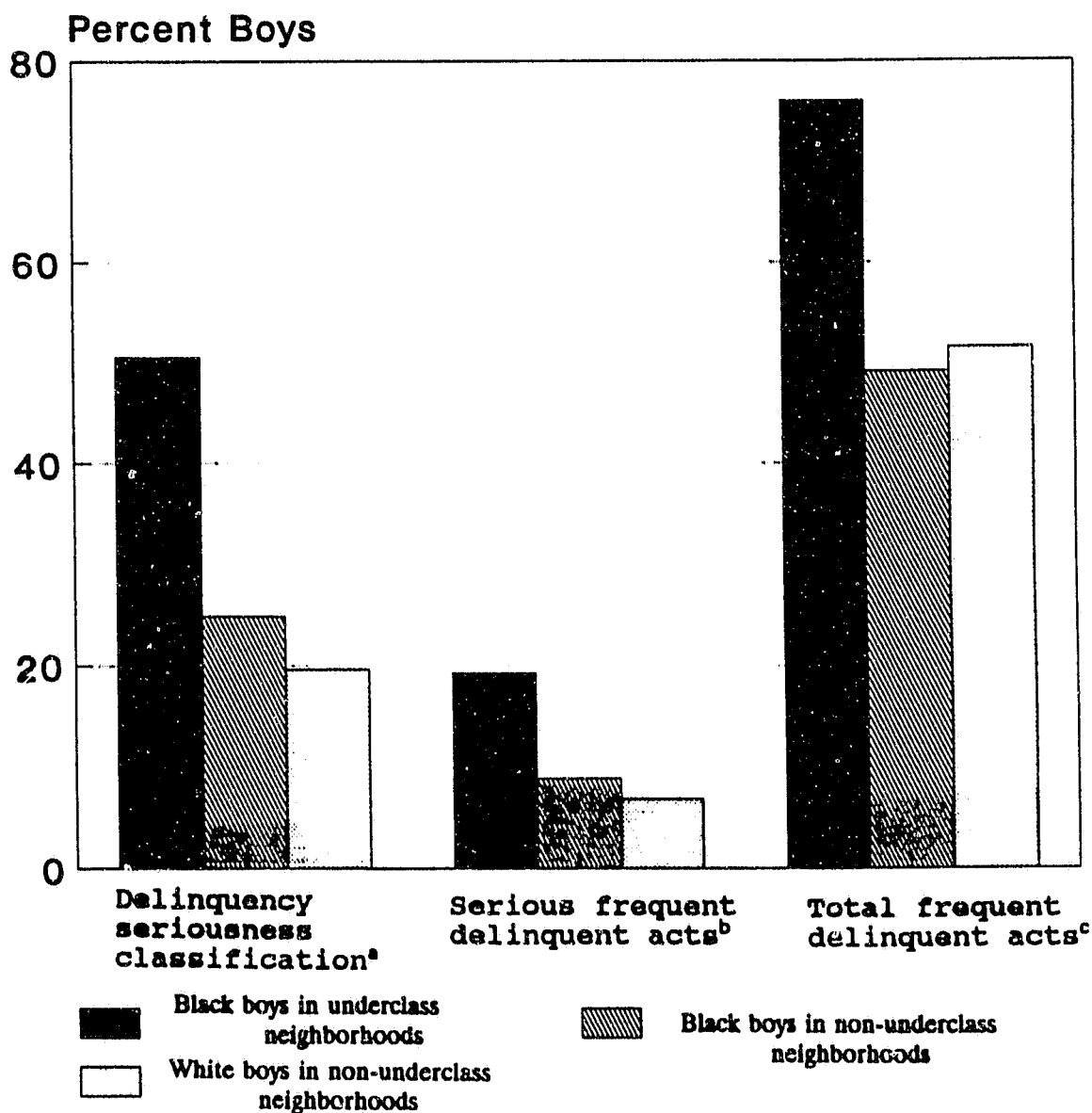
***p<.001

involvement in delinquency and more of them reported one act only. At the higher end, black youths and white youths are nearly identical in their frequencies of offending.

Figure 12.1 summarizes the preceding analyses and compares the delinquency of white and black boys living in non-underclass neighborhoods, and black boys living in underclass neighborhoods. It shows the prevalence of serious delinquency (levels 4 and 5 combined), frequent serious acts (2 or more), and total delinquent acts (2 or more). The similarities between the non-underclass neighborhood black youths and the white youths is striking, just as are the differences between the underclass neighborhood black youths and the other groups.

Finally, we examined whether or not residence in underclass neighborhoods made a significant contribution to the explanation of delinquent behavior for black youths after accounting for individual correlates of delinquency (hyperactivity and parental supervision) and self-selection factors (welfare use and single parent homes). Hierarchical stepwise multiple regressions on delinquency seriousness, frequency of serious delinquency and total frequency of delinquency, reported in Table VI, revealed that underclass neighborhood residence was significantly related to delinquency seriousness and total frequency of delinquency, but only marginally related to frequency of serious delinquency. Poor parental supervision and youths' hyperactivity were strongly related to all three measures. Self-selection factors were not significant although single parent homes were marginally related

Figure 12.1
Serious and Frequent Delinquents by
Ethnic/Neighborhood Groups



a = Levels 4 and 5 combined

b = 2 or more serious acts

c = 2 or more total acts

to total frequency of delinquency. The adjusted R^2 's for the three measures were .15, .09 and .17, respectively.

DISCUSSION

The results show the importance of including neighborhood context when studying the delinquency of black youths. The finding that the delinquent behavior of black youths is similar to white youths when they do not live in underclass neighborhoods is all the more remarkable when one appreciates that the non-underclass neighborhood black youths nevertheless live in relatively poor neighborhoods.

Not surprisingly, compared to single-parent homes and welfare use, strong correlates of delinquency for black youths were poor parental supervision and hyperactivity. Such a finding is in agreement with previous research (Farrington, 1992). Future research might investigate the relative effects of family management practices and individual characteristics on delinquency within different neighborhood contexts. Perhaps individual characteristics such as hyperactivity are exacerbated in conditions of poverty and crime. Parenting in the best of circumstances is difficult and it is probably the case that parents who live in underclass neighborhoods face even greater challenges to their parenting efforts.

The findings also demonstrate the relatively greater importance of neighborhood over single parent families and welfare use, characteristics which are highly associated in the

public mind with black families. It could be that the effects of single parent families and welfare use are at the social or neighborhood level. For example, poor, black single mothers are often clustered in isolated, geographic areas such as public housing projects where their sons come into frequent contact with delinquent youths.

The underclass measure used in this study is a proxy measure for the social, economic and geographic isolation of over 40% of the black boys in the sample. It successfully captured Pittsburgh's most disadvantaged neighborhoods but it did not differentiate the range of white neighborhoods found in this city. Methodologically, this is a weakness since we are unable to compare blacks and whites living in similar circumstances. Realistically, however, Pittsburgh is a racially segregated city which makes it nearly impossible to find sufficient common ground on which to make ethnic comparisons.

An additional drawback to our study is that our neighborhood measure is simply a contextual variable and we were not able to explore the many theoretical issues (such as formal and informal social control, the cultural transmission of values, and neighborhood ties to the larger economic and political context) now being studied in relationship to neighborhoods and communities (see Sampson and Wilson, 1991). As Farrington (1992) noted, research is needed to identify key theoretical neighborhood constructs.

While the effects of neighborhood in this study were not strong, a finding which is congruent with other studies of individually-measured delinquency (Gottfredson et al., 1991; Simcha-Fagan and Schwartz, 1986), this does not necessarily mean that the effects are not meaningful. Our inclusion of important individual and family factors which theoretically could "explain away" neighborhood effects bolsters the modest findings. Future studies might examine the effects of neighborhood on individually measured delinquency by observing what happens when youths move from "bad" neighborhoods to "better" neighborhoods, or vice versa. If their delinquency decreased (or increased), this would be a powerful demonstration of the effect of neighborhood on delinquency. But such within-subjects studies should not replace between-subjects studies since the latter studies are capable of addressing the many social and economic inequalities which exist between groups in our society.

The majority of delinquency researchers have emphasized the individual level at the expense of social-ecological context. Both are important. The assumption that children and the families who raise them are somehow independent of social context is what Currie called "the fallacy of autonomy" (1985). Policy makers need to address both levels and recognize that "what goes on inside the family [cannot] usefully be separated from the forces that affect it from the outside" (Currie, 1985, p.185).

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CHAPTER 13**PEERS AND DELINQUENCY**

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INTRODUCTION

Although the family and school are important factors in placing youth at risk for delinquent behavior and drug use, the typical youngster also spends a substantial amount of time with his or her friends and peers. Much of this time is spent in places and activities that are not supervised by adults (e.g., at parties, hanging around the neighborhood, and so on). It is, therefore, not surprising that the type of friends one has is an important factor in the generation and continuation of delinquent behavior and drug use. Indeed, Kornhauser (1978) has stated that association with delinquent friends is the variable most consistently related to delinquent behavior and Kandel has suggested that friends' use of marijuana may be the critical variable in one's own use of the drug (Kandel, 1978: 208).

The fact that youngsters are likely to behave in ways similar to their friends is not surprising. There is some question about why they do so, however. The most prominent answer to this question, known as the socialization explanation, is that young people are either influenced by or pressured into engaging in the same behaviors as their friends. Peer friendships provide the arena for learning both attitudes that

foster the behavior and the techniques of performing the act (Sutherland and Cressey, 1978). Peers may also reward the behavior, thereby strengthening it (Akers, 1985).

An alternative explanation for the relationship between peer delinquency and subject delinquency, known as the selection explanation, is that youth who are already engaging in delinquency or drug use seek out other youth who also participate in such behaviors (Glueck and Glueck, 1950; Hirschi, 1969). Delinquency may be caused by some other prior variables, but once exhibited it has the effect of increasing associations with delinquent peers (Burkett and Warren, 1987: 112). In other words, delinquents select other delinquents as their friends.

The choice need not be either the socialization or selection processes identified above, however. It may be that both processes occur over time. That is, associating with delinquent friends increases delinquency, and delinquency in turn increases the probability of selecting delinquent friends. This process could produce very high rates of delinquency. For example, the delinquent peer group would increase the person's delinquent conduct and then the elevated rate of delinquency would further isolate the person into increasingly delinquent peer groups, which in turn would increase delinquent behavior and so on. This view of mutually reinforcing relationships is consistent with the model outlined in an interactional theory of delinquency (Thornberry, 1987). To address the issue of the correct causal ordering of these variables, panel data like those collected by

these projects is necessary. This chapter addresses this and related issues.

METHODS

The measures of peer delinquency and peer drug use are similar across the three research sites. Peer delinquency is measured with an eight item scale including questions that ask respondents how many of their friends did any of eight delinquent acts. The delinquent behaviors include skipping school, damaging property, theft, assault and robbery. The actual items and the reliabilities for the scale across sites are presented in the Appendix (Table A13.1). Response categories range along a four-point scale at all three sites, although the headings for the categories are slightly different across sites.

Peer drug use is measured with a three or four item scale depending on the research site. The format of the items is the same as that for peer delinquency. The items ask about friends use of alcohol, marijuana, crack, and other hard drugs. Both peer drug use and delinquency are dichotomized with the high category representing the twenty-five percent of the respondents who report having the most delinquent friends. Respondent delinquency is measured by the street crime scale and drug use is measured by a scale including marijuana and other drugs.

This analysis uses data for three time periods, Years 1, 2 and 3. For Denver, Years 1, 2 and 3 are measured with data from their first three annual interviews. For Rochester, the peer measures at Years 1, 2 and 3 are measured with data from their first, third, and fifth interviews and in Pittsburgh they are

measured by the second, fourth, and sixth interviews, respectively.

The analysis first compares the cross-sectional relationship between these variables at Years 1, 2 and 3. It then examines the longitudinal relationship between earlier peer delinquency and later delinquency, followed by the longitudinal analysis of the relationship between earlier delinquency and later peer delinquency. Finally, using five waves of data from Rochester, and three waves of data from Denver, it examines a panel model of the reciprocal causal relationships between these variables.

CROSS-SECTIONAL RELATIONSHIPS

Results of the cross-sectional relationship between associating with delinquent friends and street delinquency for the three sites are represented in Table 13.1. As is evident from the data, associating with delinquent friends is strongly related to street crime at all three sites. For example, at Year 1 in Denver, 9.5 percent of the respondents reporting low peer delinquency commit street crimes while 30.4 percent of those reporting high peer delinquency commit street crimes. Another way of looking at this relationship is to compare the differences in percentages in street delinquents between respondents reporting low peer delinquency and those reporting high peer delinquency. For Year 1, the difference in the percentages between the two groups across the three sites ranges from 17 percent to 32 percent.

The strength of this relationship appears to increase slightly from Year 1 to Year 3. For example, the percentage

Table 13.1. Cross-Sectional Relationship Between Peer Delinquency and Subject's Street Delinquency

Street Delinquency:	Year 1			Year 2			Year 3		
	Peer Delinquency		<u>n</u>	Peer Delinquency		<u>n</u>	Peer Delinquency		<u>n</u>
	<u>Low</u> %	<u>High</u> %		<u>Low</u> %	<u>High</u> %		<u>Low</u> %	<u>High</u> %	
Denver	9.5	30.4***	(863)	8.0	36.7***	(792)	8.0	44.0***	(1092)
Pittsburgh	13.3	45.6***	(1007)	11.4	47.5***	(949)	12.9	56.7***	(919)
Rochester	20.8	37.6***	(862)	13.0	42.3***	(796)	7.1	34.4***	(802)

* p < .05 ** p < .01 *** p < .001

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

differences for the Denver data increase from 21 percent at Year 1 to 36 percent by time 3. In Pittsburgh the increase is from 32 percent to 44 percent and in Rochester the increase is from 17 percent to 27 percent.

The strength of the relationships between associating with drug using peers and drug use is even higher than that just seen for delinquency (Table 13.2). In fact, adolescents whose peers have low levels of drug use tend to report very low rates of drug use themselves; at all three time points and research sites, the largest prevalence of drug use for this group is only 7.3 percent. Although the magnitude of the overall relationship does vary somewhat across sites, it is evident that associating with drug using friends is strongly related to drug use in all three data sets. The magnitude of this relationship does not increase over time but appears to be quite stable.

DEMOGRAPHIC COMPARISONS

These cross-sectional relationships were replicated for the major demographic variables of gender, race/ethnicity and age. The results are presented in the Appendix, Tables A13.2 to A13.7. The results indicate that associating with friends who commit delinquency or use drugs has a similar effect for males and females, for whites, blacks and Hispanics, and for older and younger respondents.

LONGITUDINAL ANALYSIS

The relationship between associating with peers who are involved in illegal activities has been shown to be related to delinquency and drug use across all three sites for each of the

Table 13.2. Cross-Sectional Relationship Between Peer Drug Use and Subject's Drug Use

<u>Drug Use:</u>	Year 1			Year 2			Year 3		
	<u>Peer</u>			<u>Peer</u>			<u>Peer</u>		
	<u>Drug Use</u>			<u>Drug Use</u>			<u>Drug Use</u>		
	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>	<u>Low</u>	<u>High</u>	<u>n</u>
	<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>		<u>%</u>	<u>%</u>	
Denver	3.3	41.4***	(854)	7.0	48.1***	(778)	4.1	36.4***	(1051)
Pittsburgh	1.0	20.9***	(1007)	1.2	18.4***	(949)	1.1	25.1***	(919)
Rochester	7.3	37.5***	(871)	3.9	48.3***	(860)	5.2	34.5***	(855)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

demographic groups. As previous research has noted, this is one of the most consistent and strongest correlates of juvenile misbehavior. From these cross-sectional analyses, however, it is not possible to determine whether this relationship is a result of peers influencing one another to perform these behaviors through some socialization process, or whether youngsters simply select friends who engage in the same as activities as they do. Of course, as friends interact with one another both socialization and selection could be occurring.

To determine why the relationship between peer behavior and respondent behavior exists, it is necessary to separate in time the measures of peer delinquency and respondent delinquency. This is first done by examining the impact of earlier measures of associating with delinquent peers on later measures of delinquency. Then the impact of earlier delinquency on later peer delinquency is examined. If the relationship is observed in the former analysis but not in the latter, it is likely that socialization is the underlying reason for the existence of the relationship. On the other hand, if the relationship is observed in the latter analysis but not in the former, then a process of selection is more likely to be taking place. If both relationships are observed that would suggest an interactional relationship between these variables.

PEER DELINQUENCY TO DELINQUENCY

Table 13.3 presents data from each of the three projects about the relationship between associating with delinquent peers at one time and subsequent involvement in street crimes. It is

Table 13.3. Relationship Between Earlier Peer Delinquency and Subject's Later Street Delinquency

Year 1 to Year 2				Year 2 to Year 3			
Year 2 Delinquency:	Peer Delinquency at Year 1		<u>n</u>	Year 3 Delinquency:	Peer Delinquency at Year 2		<u>n</u>
	Low	High			Low	High	
	<u>%</u>	<u>%</u>			<u>%</u>	<u>%</u>	
Denver	12.4	26.4***	(796)		13.0	38.0***	(763)
Pittsburgh	14.8	39.6***	(981)		12.6	48.0***	(935)
Rochester	15.7	44.0***	(823)		9.7	23.5***	(795)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

clear that this relationship is quite strong. Data from Pittsburgh can illustrate the process; associating with relatively non-delinquent peers at Year 1 is related to relatively low involvement in street crimes at Year 2 (14.1 percent) but associating with more delinquent peers at Year 1 is associated with higher involvement in street crimes at Year 2 (39.6 percent).

Table 13.4 presents the same set of relationships for peer drug use and respondent drug use. Again, the data suggest a sizeable relationship; indeed, one that appears stronger than that just observed for street crimes. In Rochester, for example, of those who associate with peers who are less likely to use drugs at Year 2, 6.7 percent report drug use at Year 3 but of those who associate with peers who are likely to use drugs at Year 2, 30.9 percent report drug use at Year 3.

These longitudinal comparisons were repeated for the demographic subgroups. The results are presented in Tables A13.7 to A13.13. Overall, this longitudinal relationship appears to be quite robust. Earlier associations with delinquent peers is related to subsequent involvement in street crimes and drug use for males and females, whites, blacks and Hispanics, and younger and older adolescents.

DELINQUENCY TO PEER DELINQUENCY

The relationship between earlier involvement in street crimes and subsequent associations with delinquent peers is presented in Table 13.5. Again, a strong temporal relationship is observed. Youngsters who commit street crimes at one point in

Table 13.4. Relationship Between Earlier Peer Drug Use and Subject's Later Drug Use

Year 1 to Year 2				Year 2 to Year 3			
<u>Year 2</u> <u>Drug Use:</u>	Peer Drug Use at Year 1		<u>n</u>	<u>Year 3</u> <u>Drug Use:</u>	Peer Drug Use at Year 2		<u>n</u>
	<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>			<u>Low</u> <u>%</u>	<u>High</u> <u>%</u>	
Denver	7.4	36.9***	(783)		9.5	34.6***	(746)
Pittsburgh	2.0	18.8***	(1007)		2.7	22.5***	(949)
Rochester	12.4	37.3***	(827)		6.7	30.9***	(857)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

Table 13.5. Relationship Between Subject's Earlier Street Delinquency and Later Peer Delinquency

Year 1 to Year 2				Year 2 to Year 3			
Year 2 High Peer Delinquency:	Street Delinquency at Year 1		<u>n</u>	Year 3 High Peer Delinquency:	Street Delinquency at Year 2		<u>n</u>
	No	Yes			No	Yes	
	<u>%</u>	<u>%</u>			<u>%</u>	<u>%</u>	
Denver	22.5	52.7***	(784)		23.7	55.7***	(764)
Pittsburgh	19.6	43.0***	(949)		13.4	46.2***	(918)
Rochester	22.7	60.1***	(745)		19.9	48.5***	(777)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

time are quite likely to associate with delinquent peers at subsequent times. In Denver, for example, 13.4 percent of the adolescents who do not report street crimes at Year 2 have delinquent friends at Year 3 but 46.2 percent of those who do report street crimes at Year 2 have delinquent friends at Year 3.

Table 13.6 examines this relationship for drug use. Youngsters who do not use drugs at one time are less likely to have drug using peers in the future while those who do use drugs at one time are quite likely to have drug using peers in the future.

Appendix Tables A13.14 to A13.19 replicate this relationship for the demographic subgroups. Again, we see that this relationship is quite general. It is consistently observed for all demographic subgroups at all sites.

PANEL MODELS

The longitudinal results just presented strongly suggest that peer delinquency and delinquent behavior are mutually or reciprocally interrelated. Neither the socialization nor the selection model was eliminated suggesting that both these processes are at work. That is, associating with delinquent peers is related to subsequent delinquency, and also engaging in delinquent behavior is related to subsequent associations with delinquent peers.

Although the preceding analysis suggests that these variables are reciprocally related, the issue cannot be settled by relying on cross-tabular analysis in which the relationships are examined separately. To address the question of reciprocal a

Table 13.6. Relationship Between Subject's Earlier Drug Use and Later Peer Drug Use

Year 1 to Year 2				Year 2 to Year 3			
Year 2 High Peer Drug Use:	Drug Use at Year 1		<u>n</u>	Year 3 High Peer Drug Use:	Drug Use at Year 2		<u>n</u>
	No	Yes			No	Yes	
	<u>%</u>	<u>%</u>			<u>%</u>	<u>%</u>	
Denver	16.1	60.0***	(777)		21.8	68.0***	(748)
Pittsburgh	18.5	71.2***	(949)		21.7	76.9***	(919)
Rochester	20.6	69.3***	(798)		21.4	63.0***	(830)

* $p < .05$ ** $p < .01$ *** $p < .001$

In Pittsburgh the total sample contains only boys; in Denver and Rochester they contain boys and girls.

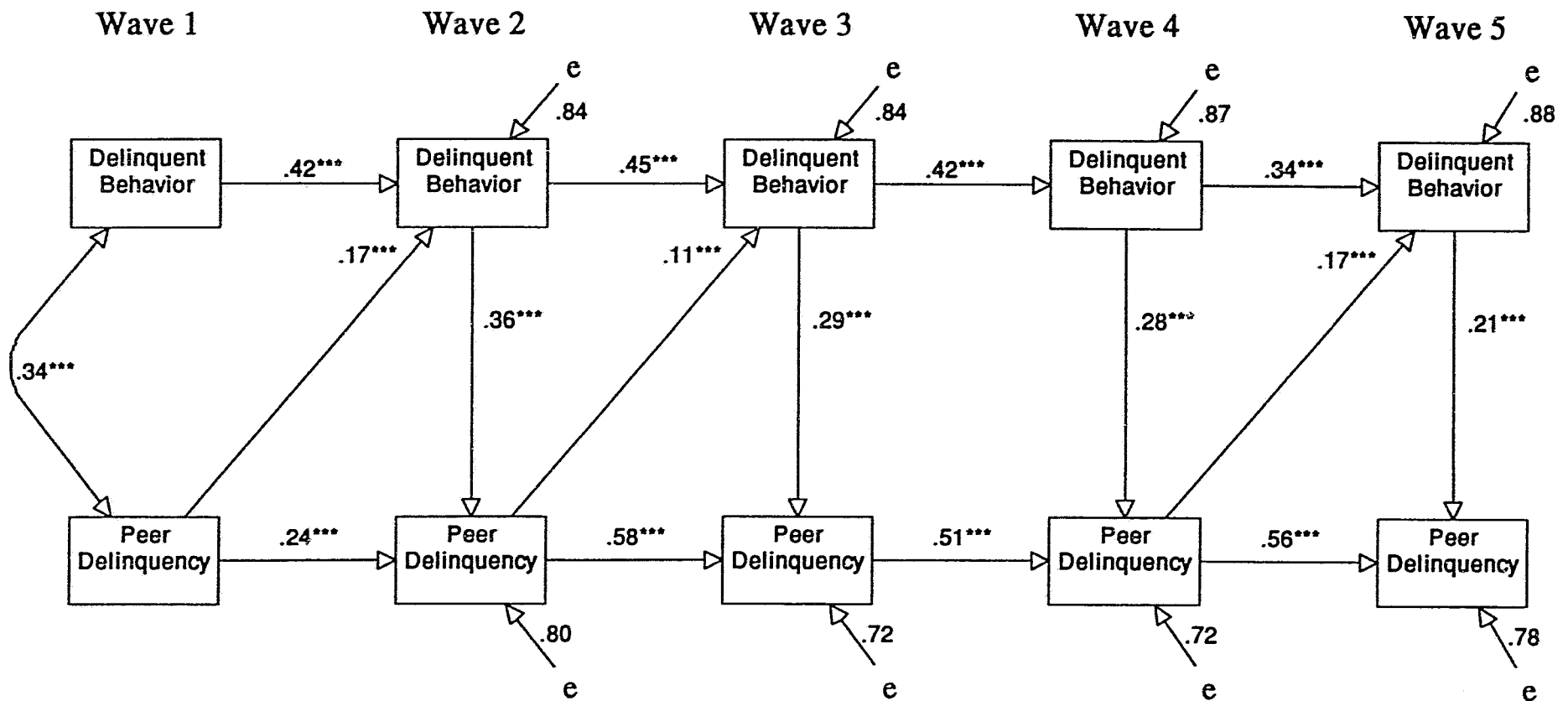
relationships more accurately, panel models using five waves of data from the Rochester Youth Development Study and three waves from the Denver Youth Survey are estimated. As in Chapters 8 and 10, which also included panel models, the discussion here focuses on the cross-variable relationships. Figures 13.1 and 13.2 provides results for a model that estimates the effects of street delinquent behavior on peer delinquency and of peer delinquency on street delinquent behavior.

Looking at the Rochester results first, we see the instantaneous effect of delinquent behavior on peer delinquency is strong across all five waves although it tends to decrease slightly over time. The coefficients range from .36 at Wave 2 to .21 at Wave 5. The effects, as expected, are positive indicating that engaging in street crimes leads to increases in associations with delinquent peers. In addition, the lagged effects of peer delinquency on delinquent behavior are significant at three of the four waves -- the relationship from Wave 3 to Wave 4 being the exception. These effects are also positive indicating that associating with delinquent peers increases the likelihood of committing street crimes.

The results from Denver are quite consistent with those from Rochester (Figure 13.2). Peer delinquency has significant lagged effects on street crimes, while engaging in street crimes has rather strong effects on associating with delinquent peers at both Year 2 and Year 3.

Figures 13.3 and 13.4 present parallel models examining the relationship between peer drug use and drug use. In Rochester

Figure 13.1 Panel Model for Peer Delinquency and Subject's Street Crimes, Rochester Youth Development Study.

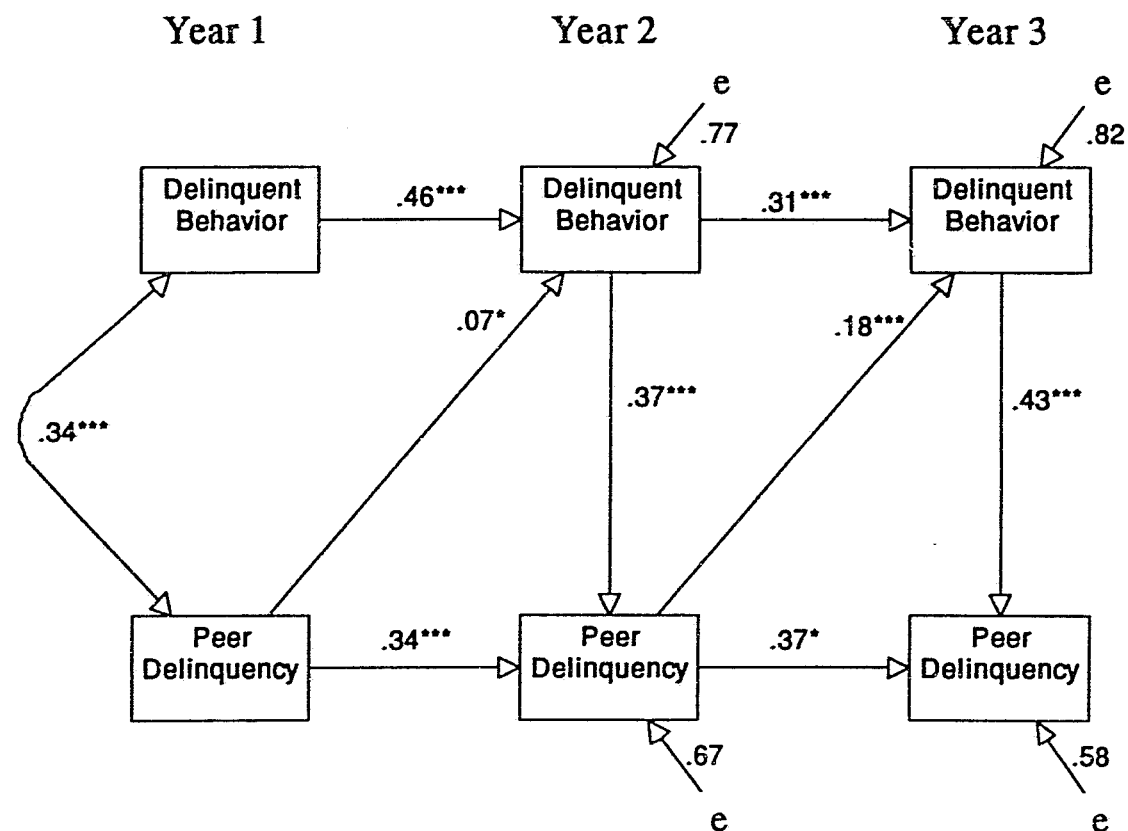


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 230.18 Degrees of Freedom = 24 Prob. < .001

Bentler-Bonett NFI = .940

Figure 13.2 Panel Model for Peer Delinquency and Subject's Street Crimes,
Denver Youth Survey.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 29.68 Degrees of Freedom = 4 Prob. < .001

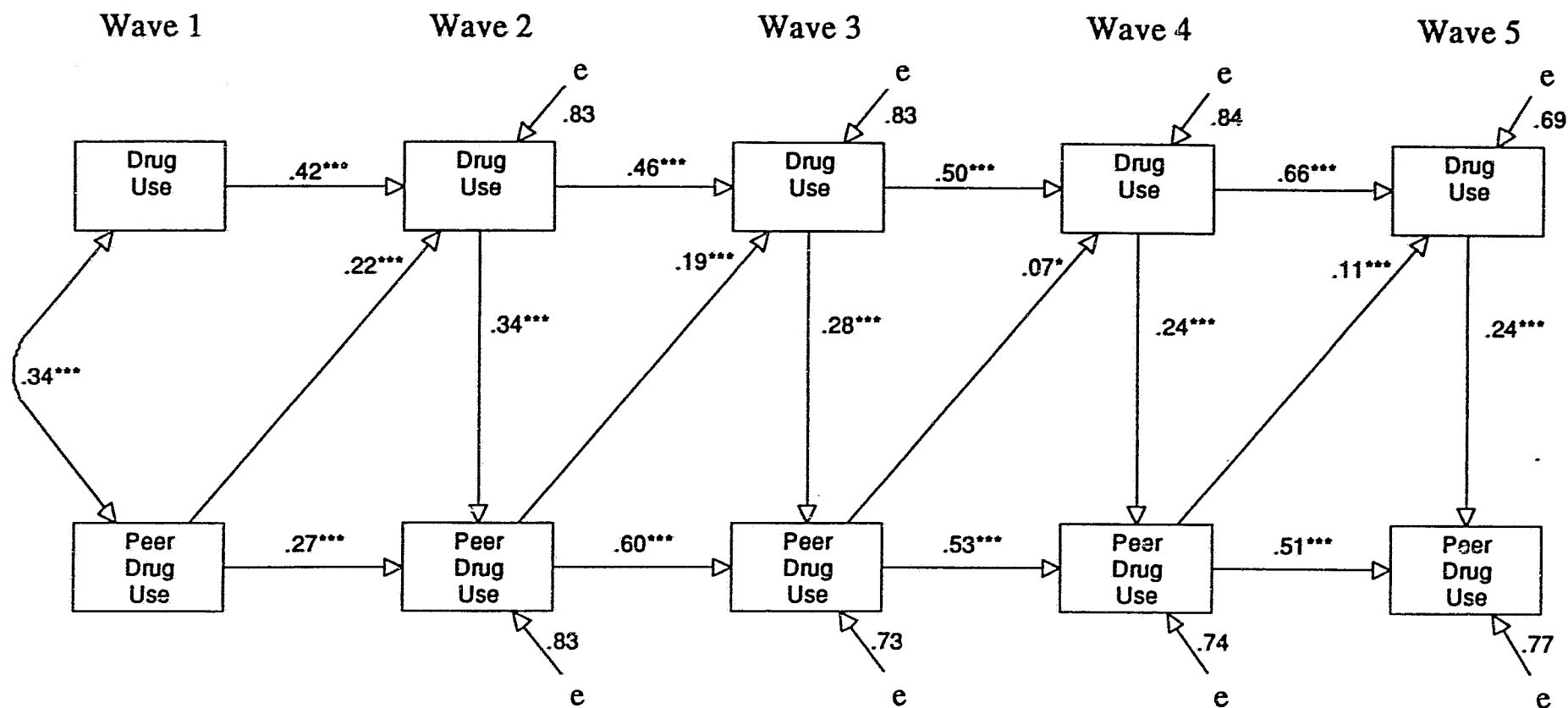
AGFI = .93

(Figure 13.3) we again see a sizeable, positive impact of drug use on associations with drug using peers. The coefficients range from .34 at Wave 2 to .24 at Wave 5. In turn, there is a sizeable and positive impact of associating with drug using peers on drug use. All four lagged effects from peer drug use to the subject's own drug use are significant. In Denver, however, the only significant effects are those from drug use to peer drug use (Figure 13.4). In a model in which the instantaneous effect from peers' use is estimated (see Figure A13.1), reciprocal effects between these variables are observed.

Overall, results from these panel models indicate that associating with delinquent peers and engaging in delinquency are reciprocally related. Also, associating with drug using peers and using drugs oneself are reciprocally related. This result suggests that over time, peer associations increase the likelihood of delinquency, then delinquent behavior further isolates the person within delinquent peer networks, and that in turn increases further the likelihood of delinquent behavior and so on. Neither factor can be considered simply as a cause of the other; over time each factor exerts a causal impact on the other.

These results raise questions about traditional approaches to understanding the relationship between peer delinquency and delinquent behavior. The issue should not be posed as a question of whether associations with delinquent others causes delinquency or whether once having committed delinquent behavior, adolescents seek out others who engage in similar behaviors. Choosing

Figure 13.3 Panel Model for Peer Drug Use and Subject's Drug Use,
Rochester Youth Development Study.

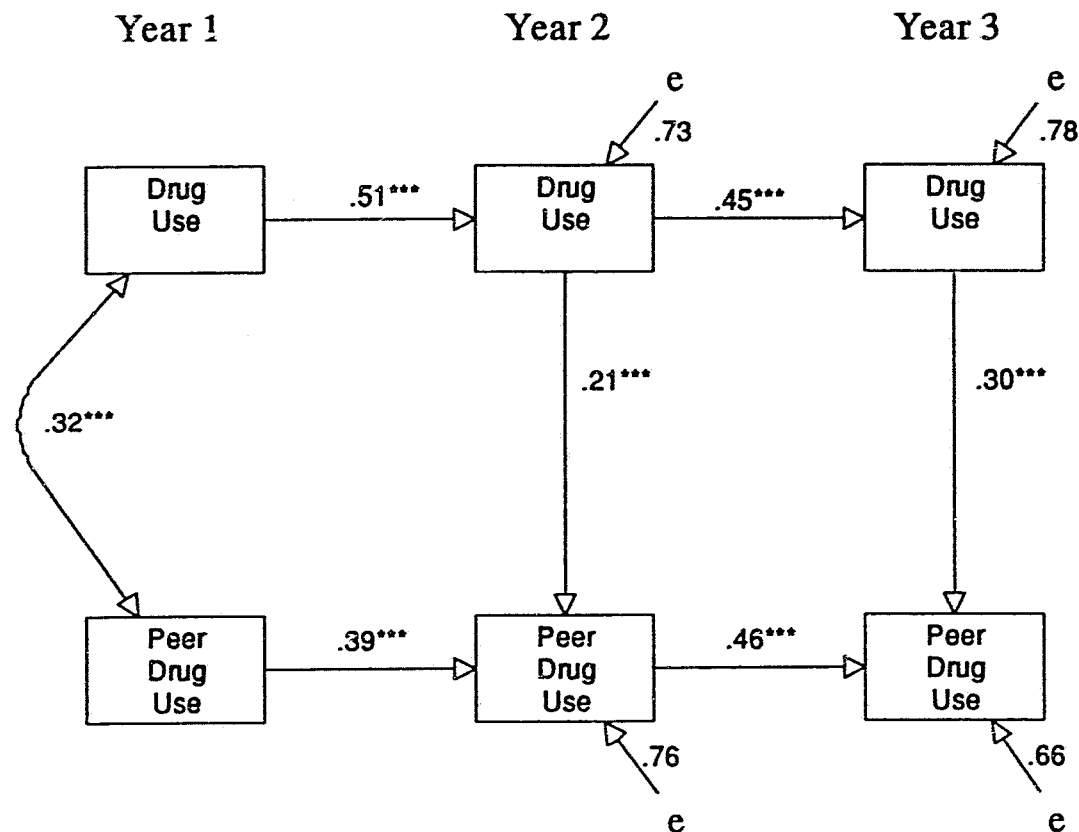


* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 289.59 Degrees of Freedom = 24 Prob. < .001

Bentler-Bonett NFI = .933

Figure 13.4 Panel Model for Peer Drug Use and Subject's Drug Use,
Denver Youth Survey.



* $p < .05$ ** $p < .01$ *** $p < .001$ (one-tailed test)

Chi-square = 26.09 Degrees of Freedom = 4 Prob. < .001

AGFI = .94

between a socialization and selection model appears to lead to a perspective that is always half wrong.

POLICY IMPLICATIONS

The results presented in this chapter reaffirm the central role that peer associations play in the development and continuation of delinquency and drug use. The relationship between these variables is quite strong and is observed at all three research sites and for each of the demographic subgroups. The results of the panel analysis also suggest that these variables are mutually interrelated, each making the other worse or better over time. Based on this the following policy recommendations are suggested.

1. Peer networks must be considered an important target for delinquency prevention and treatment programs. Drug prevention programs have recognized this and have targeted peer networks through peer mentor programs and the teaching of strategies to resist peer pressure. To some extent, guided group interaction treatment programs recognize the importance of peers for both delinquent and drug use behavior. However, these programs seldom reach the actual friendship networks in which adolescents spend most of their time. In part this is because it is easier to reach adolescents in school and treatment settings than it is to reach them "on the street". In addition adolescent peer networks have shown a tremendous resistance to adult intervention. Nevertheless, if peer influence contributes to the formation of delinquency as much as these results suggest, then that arena cannot be ignored or downplayed. Greater attention must be

devoted to establishing effective means for disrupting delinquent peer influences. In brief, this arena needs to be made a higher priority in our efforts to reduce delinquency and drug use.

2. Given the influence of peers on delinquent behavior, the current policy of incarcerating delinquent youth with large numbers of delinquent peers so that staff influence is minimal is questionable. While incarceration inevitably leads to isolation with delinquent peers, doing so in small settings where staff can influence peer interactions on a daily basis would appear preferable.

3. Peer associations and delinquency are reciprocally related so that delinquents increasingly associate with other delinquents and then those friends encourage future delinquency so that an increasing spiral towards delinquent and criminal careers is established. Because of that, intervention programs should attempt to target and disrupt the delinquent peer networks of high-risk adolescents. This could involve outreach programs in which intervention agents use focal delinquents to gain entry to the peer network and then try to alter the behavior of the network as a whole. For example, efforts could be made to engage the network in more conventional behaviors such as sports and school. Also, efforts could be made to isolate the least involved members from the rest of the group thereby reducing the likelihood of their delinquency and disrupting the solidarity of the network. The central point is that some intervention efforts must be directed at the peer network itself, not just individual members.

4. Since peers and behavior are reciprocally related intervention programs need to systematically consider that not all of the causal impact is from peer influence to delinquent behavior. Indeed, past delinquency has a large impact in generating future associations. Because of that, interventions should not overemphasize peer influence. Also, the prior causes that lead both to delinquent behavior and to associations with delinquent peers need to be identified and systematically incorporated into intervention programs.

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CHAPTER 14

GANGS

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INTRODUCTION

Juvenile gangs have been a part of American history since the founding days. The attention bestowed upon these juvenile gangs, however, has been quite varied. During the twentieth century, society has experienced surges in the levels of gang popularity, with the 1950s and 1980s being high visibility eras for gangs. Does this mean that gangs did not exist during the periods of time when relatively little media or police attention was focused on gangs? The answer to this question is a unanimous "no" (Klein and Maxson 1989; Miller 1990).

During the 1950s, coinciding with the media coverage of gangs, social science researchers such as Walter Miller, Albert Cohen, Richard Cloward, and Lloyd Ohlin led a wave of subsequent researchers in the scientific study of gangs (e.g., Klein, Spergel, Moore, Short and Strodbeck). By the 1970s, gangs had become passe and it was not until the urban gang violence of the

early 1980s that academic and media attention once again focused on the gang problem. With this renewed interest in gangs came a new generation of gang researchers (e.g., Campbell 1991, Hagedorn 1988, and Vigil 1988) who questioned the applicability of the old gang knowledge to the new gang situation. Recently, Spergel and Chance (1991) completed a survey for OJJDP to determine "what are gangs and what can be done about them?" Among their findings were the dire need to define the term gang. In their research, they found it necessary to distinguish between 1) a street gang, 2) a gang, and 3) a youth gang. In the research reported in this chapter, the Denver Youth Survey and Rochester Youth Development Study employ a definition similar to the "gang" definition suggested by Spergel and Chance (1991:23); a "somewhat organized group of some duration, sometimes characterized by turf concern, symbols, special dress, and colors. It has special interest in violence for status-providing purposes and is recognized as a gang by both its members and by others." A primary component of this definition is the requirement that the gang be involved in delinquent acts. There is a lack of consensus on the need for gangs to be delinquent. Short (1990), for example, suggests that the definition should not make any reference to behavior since this is traditionally what gang researchers are attempting to explain. Klein and Maxson (1989), on the other hand, have argued for years that illegal activities are what make gangs a social issue. Another important element of this definition is that a gang must be recognized as such by both its members and by

others. These two criteria, delinquency and recognition, were used by the Denver and Rochester projects to define gang membership.

One apparently recent development in American gang structure or organization is the appearance of gangs in small and medium sized cities such as Milwaukee, Denver, Rochester, Birmingham, and others. Consistently, whether in Los Angeles or Chicago, Boston or New York, Denver or Rochester, criminal justice officials and the media will inform you that there is a gang problem in their communities. Gangs are held responsible for a variety of crimes ranging from vandalism to drug dealing and murder, and they are routinely blamed for disproportionate amounts of crime, especially drug distribution (e.g., Fagan 1989). In fact, one gang expert goes so far as to suggest that youth gangs of the 1990s have established a national network of drug distribution similar to the "mafia's" alcohol distribution network during prohibition (Taylor 1990). To what extent can such assertions be born out by empirical research? The Denver and Rochester studies have collected some interesting descriptive data on gangs in their respective communities. With this information, we will examine the prevalence of gangs, their composition, and their degree of involvement in drug sales and other crimes.

METHODS

The Denver Youth Survey and the Rochester Youth Development Study collected data about gang membership among their respective

samples. One early finding from this line of questioning was that a substantial number of youth indicated that they were members of gangs. Upon further examination, however, it was determined that what some of these youth described as gangs could best be defined as "near groups" in Yablonsky's terminology (Yablonsky 1962). In the Denver project, follow-up questions sought descriptions of the kinds of activities in which gangs were involved. If, in accordance with Klein's criteria, they were not involved in illegal activity, they were eliminated from the analysis. With the same objective of eliminating non-delinquent gang members from their sample, the Rochester site only considered as a gang groups that had a gang name and that had ten members or more. This process, while reducing the number of potential gang members by approximately 50 percent in Denver and by approximately 33 percent in Rochester, allows for a more stringent and accurate description of juvenile delinquent gang membership and activity.

ANALYSES

GANG MEMBER DEMOGRAPHICS

Gangs have traditionally been thought of as being a predominantly male phenomenon and relatively few studies have concentrated on female gang members (e.g. Campbell 1991). In the Denver site, this stereotype is somewhat fulfilled if only gang members at Year 2 or Year 3 are examined (79% and 75% respectively are male), but even then, females appear in greater numbers than indicated by prior research (Table 14.1). Cross-

Table 14.1 Demographic Characteristics of Gang Members

A. <u>Gender</u>	<u>Denver</u>			<u>Rochester</u>		
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Male	10 50%	19 79%	19 75%	59 43%	72 49%	56 83%
Female	10 50%	5 21%	6 25%	80 57%	75 51%	11 17%
Total	20	24	25	139	147	67
<hr/>						
B. <u>Race</u>						
Black	6 29%	11 45%	13 51%	115 83%	123 84%	45 67%
Hispanic	10 52%	10 42%	10 40%	16 11%	16 11%	13 20%
White	0 0%	2 10%	0 0%	8 6%	8 5%	9 13%
Other	4 19%	1 4%	2 10%	--	--	--
Total	20	24	25	139	147	67
<hr/>						
C. <u>Age</u>						
<u>Birth Year</u>				<u>Grade Year 1</u>		
1972	10 55%	10 42%	10 40%	7th	65 47%	84 57%
1974	6 31%	10 40%	10 38%	8th	74 53%	63 43%
1976	3 14%	4 17%	5 21%			
1978	--	--	0 0%			
Total	19	24	25			

sectional analysis of Year 1 Denver gang data, however, reveals that half of all gang members at that point in time were female. Over the entire three year Denver study period, 33 percent of all gang members were female. Findings from Rochester reveal a similar pattern, although more pronounced than the Denver data - females comprise the majority of gang members in both Years 1 and 2 (57% and 51% respectively). By Year 3, however, they account for only 17 percent of gang members. Over the three year time period, 55 percent of the Rochester gang members were females. Thus while there is some evidence that gang members are primarily males, there is reason to believe that females are more involved in gangs than was earlier reported.

As with gender, gang members generally have been assumed to be youth from ethnic/racial minority backgrounds. In a 1989 survey of law enforcement officials in 45 cities across the nation, it was found that blacks and Hispanics made up 87 percent of gang membership (cited in Gurule, 1991). This image is supported with the Rochester and Denver data with approximately 90 percent of gang members in both sites being black or Hispanic (ranging from 81% in Denver during Year 1 to 95% in Rochester during Year 2). In fact, in Denver, none of the Year 1 or Year 3 gang members were white (Table 14.1).

Gang membership also appears to be somewhat associated with age -- none of the 11 year olds in the Denver study report being gang members in Year 3. Comparatively, four percent of the 17 year olds, three percent of the 15 year olds, and two percent of

the 13 year olds were gang members at that time. Furthermore, among gang members in Year 3, 40 percent were 17 year olds compared to 38 and 21 percent who were 15 and 13 years old respectively. Perhaps due to the more homogeneous age distribution of the Rochester data, no significant age differences were found. At what age do youth join gangs? According to responses from Year 3 gang members in Denver, most did not join until their teen years, although two respondents indicated they joined a gang before the age of twelve (see Figure 14.1).

An important finding in both the Rochester and Denver studies is that gang membership is a very fluid phenomenon. That is, gang membership is not like a personality or physical trait that once obtained remains. In fact, youth appear to float in and out of gangs on a fairly regular basis and only a small minority remain in the gang over time. Of the 177 youth who were gang members at one time or another in Rochester, only 16 percent were gang members at three consecutive six month time periods, 27 percent were members during two consecutive periods and the remaining 58 percent were gang members at only one point in time. While fewer youth report gang membership in the Denver study, the same lack of stability in gang membership was found. Fully 73 percent of youth who report being gang members in Denver were gang members during only one year of the study.

Gang membership data reported in Table 14.2 reveal a substantial difference in the prevalence of gang membership in

**Figure 14.1 Age of Gang Initiation for Year 3
Denver Gang Members**

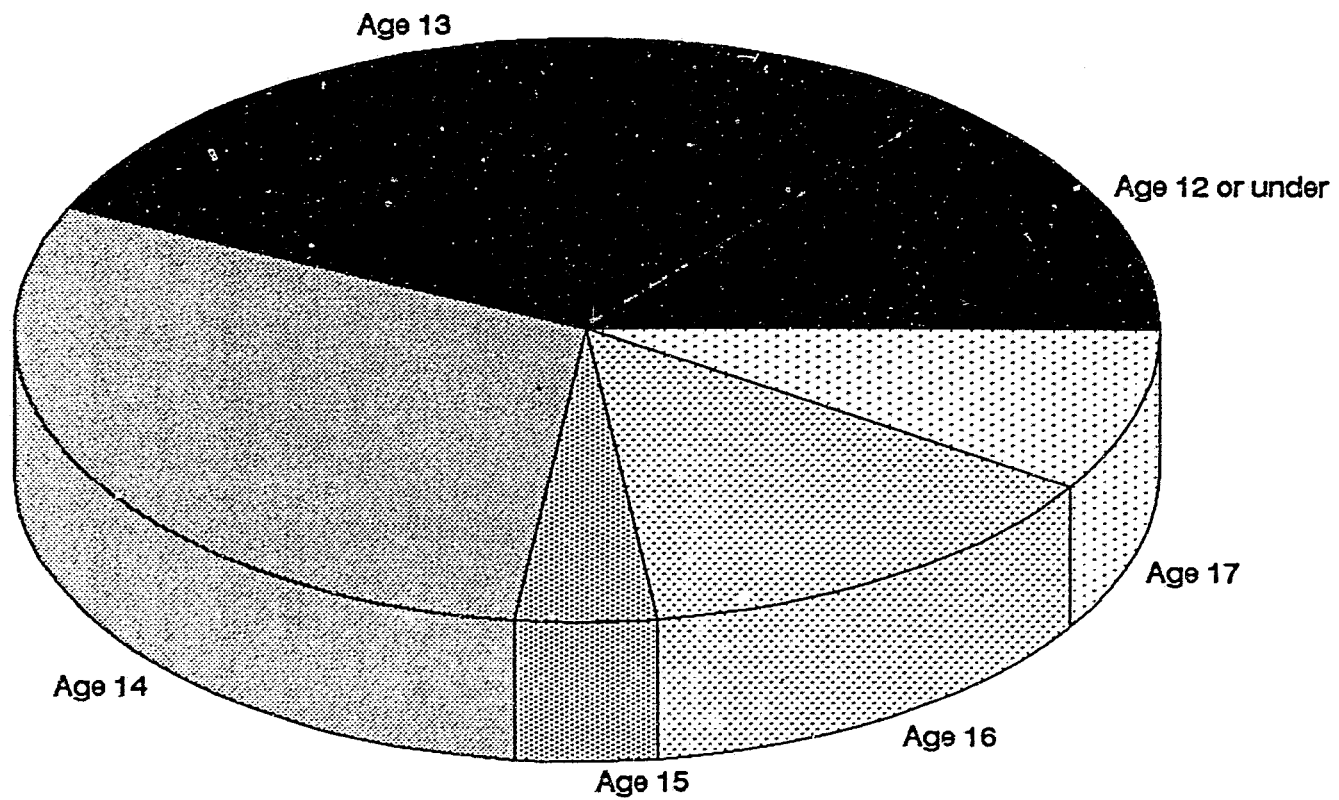


Table 14.2 Length of Time in Gang

	<u>Denver</u>	<u>Rochester</u>
Never a Member	697 92%	624 78%
At least One Year	36 5%	101 13%
At least Two Years	10 1%	47 6%
At least Three Years	1 -%	28 3%
Total	758	801

For youth involved during the third year of the studies, the full length of gang involvement is unknown. Such youth may or may not be involved in subsequent years. As a result, categories of at least one, at least two and at least three years are used.

the two sites. While 22 percent of the Rochester youth indicate they have been a gang member during some period of time during the study, only eight percent of Denver youth report being in gangs. Is this a site difference or a methods difference? The answer is a little of both. The Denver policy of eliminating all non-delinquent gangs from the analysis is a slightly more limiting definition than that used in Rochester. In addition, the Denver data includes a wider age range of youth (13 - 17 year olds in Year 3), whereas Rochester's sample is more homogeneous and includes primarily youth aged 15 to 17 years in Year 3. These two method's factors may contribute to the discrepancy in prevalence rates. By including all gang members (including non delinquent gang youth), the Denver prevalence rate increased to 12 percent, still somewhat lower than the Rochester rate.

GANG DELINQUENCY

Are gang members more involved in delinquency than non gang members? Examination of Table 14.3, which reports the relative involvement of gang members and non-gang members in four types of delinquent activities and two different types of drug use, results in a firm "yes".

In both sites, gang members report a substantially higher level of involvement in every illegal activity, be it alcohol use or street level offending. The prevalence rates reported in Table 14.3 are remarkably similar for the two sites, with approximately 85 percent of gang members in both Denver and

Table 14.3 Gang Involvement in Self-Reported Delinquency and Drug Use

	<u>Street Offenses</u>		<u>Serious Offenses</u>		<u>Minor Offenses</u>		<u>Drug Sales</u>		<u>Alcohol Use</u>		<u>Other Drug Use</u>	
	<u>Gang</u>	<u>Non- Gang</u>	<u>Gang</u>	<u>Non- Gang</u>	<u>Gang</u>	<u>Non- Gang</u>	<u>Gang</u>	<u>Non- Gang</u>	<u>Gang</u>	<u>Non- Gang</u>	<u>Gang</u>	<u>Non- Gang</u>
Denver												
N	22	165	20	343	22	571	10	26	21	286	13	107
%*	87%	15%	82%	32%	91%	54%	28%	2%	83%	27%	53%	10%
Rochester												
N	56	72	57	248	53	285	21	21	55	343	31	93
%	83%	9%	85%	31%	77%	35%	32%	3%	32%	43%	43%	12%

* Percents refer to percent of gang and non-gang members involved in each of these activities

Rochester reporting involvement in both street and other serious offenses during Year 3. In contrast, only 15 and 19 percent of the non-gang members report involvement in these types of offenses. The only delinquent or drug use type for which a difference was not found between gang and non-gang members was for alcohol use in Rochester where gang members report lower levels of alcohol use than did the non-gang members. As with delinquency and drug use in general, gang members are also much more likely to be involved in the sale of illegal drugs. Only two percent of Denver and three percent of Rochester non-gang youth report selling drugs in Year 3 compared to 38 and 32 percent respectively of Denver and Rochester gang members who report some involvement in drug sales during the past year.

Perhaps not surprising given their higher level of involvement in both delinquency and drug sales, gang members also had a substantially higher probability of being arrested. Two thirds (66%) of gang members in Denver were arrested during 1989 compared to only 16 percent of the other youth. However, a closer look at the arrested population reveals that only eight percent of youth arrested in Year 3 were gang members; the remaining 92 percent were not gang members.

With the greater level of gang membership in Rochester, that site was able to repeat the preceding analyses by length of gang membership. The results of these analysis clearly indicate that all gang members are not alike in terms of their self-reported delinquency. Transient gang members, those who were members of a

gang for only one wave, have higher rates of delinquency and drug use than non-members, but not vastly so. On the other hand, more permanent gang members, those reporting being a member of a gang for three or more consecutive waves, have substantially higher rates of involvement than either the non-gang members or the more transient gang members. For example, 64 percent of the more permanent members reported street crimes, 88 percent other serious offenses, 79 percent minor offenses, and 88 percent alcohol use (Table 14.4). It should be noted that this level of delinquent involvement represents a conservative estimate of the effect of the length of gang membership. By combining all youth who were gang members during consecutive waves, some individuals who were no longer gang members in Year 3 are included with current gang members in the analysis, thus deflating the level of delinquency in Year 3. In summary, however, it is safe to conclude that a great deal of delinquency is committed by the relatively few individuals who join and remain in juvenile gangs over time.

In the Denver project, gang members were asked a series of questions about the kinds of activities in which the gang is involved. Responses listed in Table 14.5 indicate a high level of delinquent activity: for example, 95 percent of the gangs both fight other gangs and are involved in thefts greater than \$50, 54 percent of the gangs commit robberies, and 87 percent report selling drugs other than marijuana. Clearly, illegal activities are a prominent part of the gang experience and these

Table 14.4 Gang Involvement in Self-Reported Delinquency and Drug Use in Year 3 Controlling for Length of Gang Membership - Rochester

	<u>Street Offense</u>	<u>Serious Offense</u>	<u>Minor Offense</u>	<u>Drug Sales</u>	<u>Alcohol Use</u>	<u>Other Drug Use</u>
Never a Member	42 7%	175 28%	210 34%	16 3%	235 38%	52 8%
One Wave Only*	20 20%	44 43%	48 47%	6 6%	63 62%	20 20%
Two Consecutive Waves	10 21%	21 45%	18 37%	3 7%	30 64%	10 21%
Three or More Consecutive Waves	18 64%	25 88%	22 79%	11 38%	24 88%	16 58%

* These time periods refer to interview waves separated by six-months, not annual time periods.

Table 14.5 Activities in which gangs are involved - Denver 1989

<u>Activity</u>	<u>N</u>	<u>Percent</u>
Fight other gangs	21	95%
Use weapons	20	91%
Protest members	23	100%
Steal < \$50	5	27%
Steal > \$50	20	95%
Robbery	12	54%
Joyriding	21	92%
Attack people	19	86%
Sell pot	17	76%
Sell other drugs	19	87%
Raise hell	20	92%
Threaten people	16	69%
Damage things	16	73%
Do fun but legal things	14	66%

descriptions coincide with the self-reported levels of delinquency discussed above.

LONGITUDINAL ANALYSES

Are gang members more delinquent prior to becoming gang members or is the increase in delinquent behavior contemporaneous with gang membership? The answer to this question has ramifications for delinquency and gang intervention programs. Table 14.6 summarizes the relationship between gang membership and street offending during the three years of the Denver and Rochester studies. Given the small number of youth who belong to gangs for more than one reporting year, only the data for non-gang members and those who belonged to gangs during only one of the three years are presented (i.e., youth who were gang members during two or three years are excluded from this particular analysis). Clearly, youth who are active in gangs at any point in time are more likely to be street offenders than youth who report never being associated with a gang, between seven and 16 percent of the Denver and Rochester non-gang youth were classified as street offenders compared to 19 to 84 percent of gang members. Annual data from the Denver site illustrate the relationship between the rates of street offending among gang and non-gang youth. Overall, gang members are particularly likely to be involved in street offenses during the year they were also gang members, with lower levels of involvement both before and after their time in the gang. Among Year 1 gang members, 71 percent were classified as street offenders. By Years 2 and 3,

Table 14.6 Prevalence of Street Offending Among Gang and Non-gang Members

<u>Gang Membership</u>	<u>Street Offenders</u>		
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
A. <u>Denver</u>			
Non-gang	96 12%	95 12%	131 16%
Year 1 only	10 71%	3 19%	3 23%
Year 2 only	6 39%	11 73%	7 47%
Year 3 only	7 35%	10 50%	17 84%
<hr/>			
B. <u>Rochester</u>			
Non-gang	64 11%	53 9%	42 7%
Year 1 only	101 47%	61 34%	34 27%
Year 2 only	79 44%	114 61%	50 44%
Year 3 only	34 19%	43 25%	56 44%
<hr/>			

when these youth were no longer in a gang, the percentage of street offenders had decreased, being only slightly higher than the prevalence rate for non-gang youth. For Year 2 gang members, 39 percent were classified as street offenders in Year 1, 73 percent in Year 2 while they were gang members, and then 47 percent in the following year when they were no longer in the gang. For the Year 3 gang members, a gradual increase in the number of street offenders can be seen prior to joining the gang, but there is a substantial increase in the Year 3 rate of being a street offender (from 50% in Year 2 to 84% in Year 3). The Rochester data, while reporting slightly different frequencies, revealed very similar trends.

The preceding discussion focused on the prevalence of street offending among gang and non-gang members. Of equal importance, and essential to the understanding of the level of delinquent behavior is examination of the individual offending rates for these two groups (Table 14.7). While gang members comprise only 12 percent of all street offenders in Denver, they account for approximately half (46%) of all street offenses during Year 3. The 22 gang members in Year 3 committed an average of 40.11 offenses per person for a total of 882 street offenses. The 164 non gang youth who committed street offenses were involved in an average of only 6.17 per person for a total of 1011 offenses. Data from Rochester are even more pronounced. In Year 3, for example, gang members committed an average of 19.71 street offenses compared to only 1.42 for non-gang members. Table 14.7

Table 14.7 Individual Offending Rates of Street Offending Among Gang and Non-gang Members

		Street Offenders		
		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
A. <u>DENVER</u>				
Year 1	Non-gang	9.03 *	6.42	6.51
	Gang	23.50	19.88	2.42
Year 2	Non-gang	4.41 ***	7.96 ***	8.64
	Gang	25.30	35.88	10.41
Year 3	Non-gang	2.54 **	2.69 ***	6.17 ***
	Gang	14.15	22.26	40.11
<hr/>				
B. <u>ROCHESTER</u>				
Year 1	Non-gang	0.81 ***	1.85 **	2.54
	Gang	8.94	10.91	3.78
Year 2	Non-gang	0.95 ***	1.00 ***	1.37 *
	Gang	6.31	15.10	6.68
Year 3	Non-gang	1.59 **	1.68 ***	1.42 ***
	Gang	7.46	17.41	19.71
<hr/>				
* p < .05				
** p < .01				
*** p < .001				

reveals that the mean number of street offenses committed by gang members is significantly higher than that of non gang members in years preceding their joining the gang, but that in the years following their departure, there is a dramatic reduction. By Year 3, for example, there were no statistically significant differences in either of the sites between the Year 1 gang members and those who were not gang members in Year 1.

In summary, while gang members have higher rates of involvement in street offending not only during the year in which they are gang members but also in the years preceding membership, the rate is particularly high and pronounced during the gang years. These higher rates of offending, however, decrease substantially once the youth leaves the gang. It is important to make the following caveat: even though gang members are disproportionately classified as street offenders, they actually account for a small number of all street offenders. In Year 3, for example, only 22 (13%) of the 164 youth classified as street offenders in Denver were gang members. Despite their low representation within street offenders, they are significantly more active and account for almost half of all the street offenses committed. A delinquency reduction or prevention policy focusing on gang members is likely to have little overall impact on the prevalence rates of street offending, but may well effect the overall volume of criminal activity.

SUMMARY AND POLICY IMPLICATIONS

Contrary to much prior research on gangs, both the Rochester

and Denver projects found females to be quite active in gangs (15% to 57% of the gang members in Rochester and 25% to 50% of the gang members in Denver were female, depending on the year examined). As has been found in other research, gang members in both of these study sites were disproportionately black or Hispanic and very few youth joined gangs prior to their teen years. While gang membership generally is presented as if it is a stable characteristic of a person, comparable to gender and race, this is not the case here. In both Rochester and Denver, very few of the youth report being in a gang for more than one year. During that year of membership, however, the prevalence of street offending increases substantially, such that gang membership and street offending almost become synonymous.

As has been repeatedly argued by Klein and Maxson (1989) and more recently by Spergel and Chance (1991), there is considerable need for a uniform definition of "gang" and gang behavior. Whether from a research or policy perspective, it is important that a common ground be reached. The same behavior in different jurisdictions should be labeled the same by law enforcement and media alike. Research at the two sites uncovered that while many youth consider themselves members of youth gangs, when a more rigorous definition including such things as name, turf, colors, and illegal behavior are included, only a subset of these original gang members remains. In the Denver study almost one half of self-professed gang members were not considered gang members by this more rigorous definition. A more uniform

definition of gangs and gang behavior would be a point of departure for a better understanding of a phenomenon that may well be substantially distorted due to a lack of a common means for studying, describing, and regulating gang behavior.

Gang members are considerably more active in delinquency, including drug sales, and drug using behavior than are non-gang members. The longitudinal analyses reported here indicate that the involvement of gang members in delinquency and drug use is rather strongly patterned in two ways. First, not all gang members are equal in terms of involvement in delinquency. Individuals who join and remain in gangs over time periods appear more committed to the gang and certainly have much greater involvement in delinquency and drug use than less permanent members. Second, while gang members have higher rates of involvement in street crime even before joining the gang, the prevalence and rate of involvement in street crimes is substantially higher during the year of membership. It is not only the type of person therefore that leads to the higher involvement in street crime, but the gang milieu itself clearly contributes to the criminal behavior of gang members.

These findings lead to the following policy suggestions:

- 1.) Efforts to reduce the level of street crimes and delinquency should clearly target active gang members. Intervention and treatment programs will have a substantially larger pay-off when focused on active gang members than on the general delinquent population, precisely because of the added

impetus to criminal involvement provided by the gang milieu.

2.) While focusing on active gang members is important, it should be kept in mind that not all gang members are alike; permanent gang members have higher involvement in virtually all forms of delinquency than transient members. Particular intervention attention should be focused on them.

3.) The fluidity of gang membership should be used as a tool to disrupt and disband juvenile gangs. Since membership is so transient, it may be more effective to target transient and less committed members rather than the leaders or more permanent members. Such efforts would rely on the inherent instability of gang membership to weaken the structure of the gang and reduce its apparent power and size in the eyes of potential members.

4.) While attempts to disrupt gangs and to focus attention on active and permanent members are important, a general prevention strategy focusing on the reasons and conditions that lead to high rates of offending may also reduce gang membership. Based on the research reported here, it appears that the youth who will ultimately join gangs engage in more serious forms of delinquency prior to gang initiation than do non-gang members. Thus, it is not gang affiliation alone that explains the higher levels of street offending among gang members. Rather, other conditions which contribute to a youth's involvement in serious offending need to be understood in order to reduce gang involvement. While reducing current gang delinquency is important, an intervention policy without an emphasis on

alleviating the conditions which spawn serious and violent delinquent behavior would fail to prevent others from joining gangs in the future. Thus, an emphasis on prevention would seem to be a profitable strategy in the long run.

5.) Analysis of arrest rates of gang members also suggests that police intervention alone has not and will not result in reduced gang activity. While gang members in both Denver and Rochester have arrest rates substantially higher than those of non-gang members, it does not appear that the police suppression approach is or will be very successful in reducing delinquency. Perhaps intervention strategies other than law enforcement alone would be more successful. Spergel and Chance (1991), for example, concluded in their review of prevention strategies that "community mobilization was the factor that most powerfully predicted a decline in the gang problem." Clearly, intervention strategies, whether law enforcement or community oriented, need to be coupled with effective prevention policies that target the underlying conditions which contribute to high rates of delinquency regardless of the presence of gangs.

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CHAPTER 15**GUN OWNERSHIP AND DELINQUENCY**

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INTRODUCTION

Because firearms are so frequently involved in crime, and because there are so many legal gun owners, socialization into the legal and illegal use of guns is of great concern to criminologists and practitioners. Only through a clear understanding of socialization into both legal and illegal gun use can we develop policies that minimize the criminal use of firearms while protecting the rights of legitimate owners.

In this vein, some researchers have studied how Southern culture, with its strong tradition of firearms ownership, is handed down from one generation to the next (Reed, 1971), while others have studied how culture effects patterns of legal firearms ownership (O'Connor and Lizotte, 1978; Dixon and Lizotte, 1987; and Dixon and Lizotte, 1989). But only a few studies have focused on the crucial issue of childhood socialization into firearms ownership for sport, protection, or criminal use. Moreover, all of these studies of childhood socialization are flawed in that they do not use data on individual children who own guns.

Researchers who have used individual level data have been forced to rely on more fallible retrospective data from interviews of adults about their childhood experiences. Lizotte

and Bordua (1980) and Lizotte, Bordua and White (1981), for example, found that respondents were more likely to own for sport if they were socialized early and if their parents owned guns. Those who own guns for protection also tend to experience early childhood socialization into sporting gun use but they also have friends' who own guns for protection.

Wright and Rossi (1986) found a similar pattern when they interviewed adult felons about socialization into firearms ownership. Fathers, siblings, and other male relatives had significant socializing effects on felons' early gun ownership. In addition, felons with many childhood friends who owned and carried guns became owners earlier, and they were more likely to be involved in crime later in life. Wright and Rossi (1986:122) speculate that it was these friends who socialized the felons into criminal gun use at an early age, rather than their parents or relatives. However, given the design of their study they could not be sure.

Knowing whether childhood socialization into early criminal gun use is a direct result of peer, rather than family, socialization requires a mixed sample of delinquent and non-delinquent children as well as indicators of parental and peer socialization. The Rochester Youth Development Study has such information. Because these data are not the retrospective recollections of adults about their childhood that is typical of most past research, we can determine the immediacy of the impact that peer socialization into gun use has on the criminal behavior of adolescents.

DATA AND METHODS

Table A15.1 in Appendix A15 shows the coding of variables used in this analysis. Variable names are on the left-hand side of the table while descriptions and univariate statistics are listed on the right. All data reported in the analysis are from Wave 4 of the Rochester Youth Development Study, the first point at which information on firearms ownership was collected. At Wave 4 the subjects were in the ninth and tenth grades and the majority were 14 and 15 years old. In addition, all analysis is for boys only, since at this age girls rarely own guns, whether legally or illegally.

While we exclude girls from this analysis of firearms ownership and use, it is important to note that many girls carry and use other weapons such as knives, razors, clubs, and the like. Analyses of data on girls weapon use will be reported elsewhere.

ANALYSIS -- GUNS AND CRIME

At these ages more boys own illegal guns than own legal ones.¹ About three percent of the boys in the Rochester Youth

1. The New York State Penal Code requires that one must be 16 years of age to legally possess a firearm. Handguns require a special permit. In order to obtain a permit one must file an application which initiates a background check to determine that the applicant is not a felon, and the applicant must pay an \$80 application fee. Once this process is complete a judge must sign the permit. In Monroe county the judge responsible for permits will only rarely sign a permit for a sixteen year old. Applicants are informed of this, and also that the application fee must be paid whether the permit is issued or not. Eighteen year old applicants are more likely to obtain the judge's signature. It is also illegal for anyone under twenty-one years of age to purchase a handgun in New York State. In other words, if a sixteen year old were to obtain a permit it would only allow him to "possess" a gun which is owned by another person. So for

Development Study own a legal gun, while seven percent own illegal guns. Figure 15.1 shows that white boys are more likely to own a legal gun (9 percent) than are black (2 percent) or Hispanic (1 percent) boys. Although, Hispanic boys, and to a lesser extent black boys, are a little more likely to own illegal guns than white boys, these differences are not statistically significant.

Perhaps more troubling than the number of illegal guns owned by these boys is the fact that 57 percent of those who own illegal guns also carry them on a regular basis. About half of the white and black boys who own illegal guns carry them, but nearly all of the Hispanic boys that own illegal guns carry them regularly (11 of the 12 percent). If we project these figures to the population it means that about 120 boys in the ninth and tenth grades in Rochester carry illegal guns regularly.

Figure 15.2 shows the relationship between type of gun ownership and three measures of crime for the boys. Those who own no gun and those who own legal guns are about as likely to commit street crime, gun crimes and use drugs. In fact, boys who do not own a gun are a little more likely to commit a street crime (24 percent) than those who own a legal gun (14 percent). Furthermore, neither of the two are at all likely to be involved in gun crimes.

our purposes boys who own handguns own them illegally. In addition, illegal ownership includes those who own sawed off shotguns and rifles, or long guns that the boys say are for "protection." Legal guns only include shotguns and rifles that are not sawed off and not owned for protection.

Figure 15.1 Relationship Between Race, Ethnicity, and Type of Gun Owned and Carrying Guns.

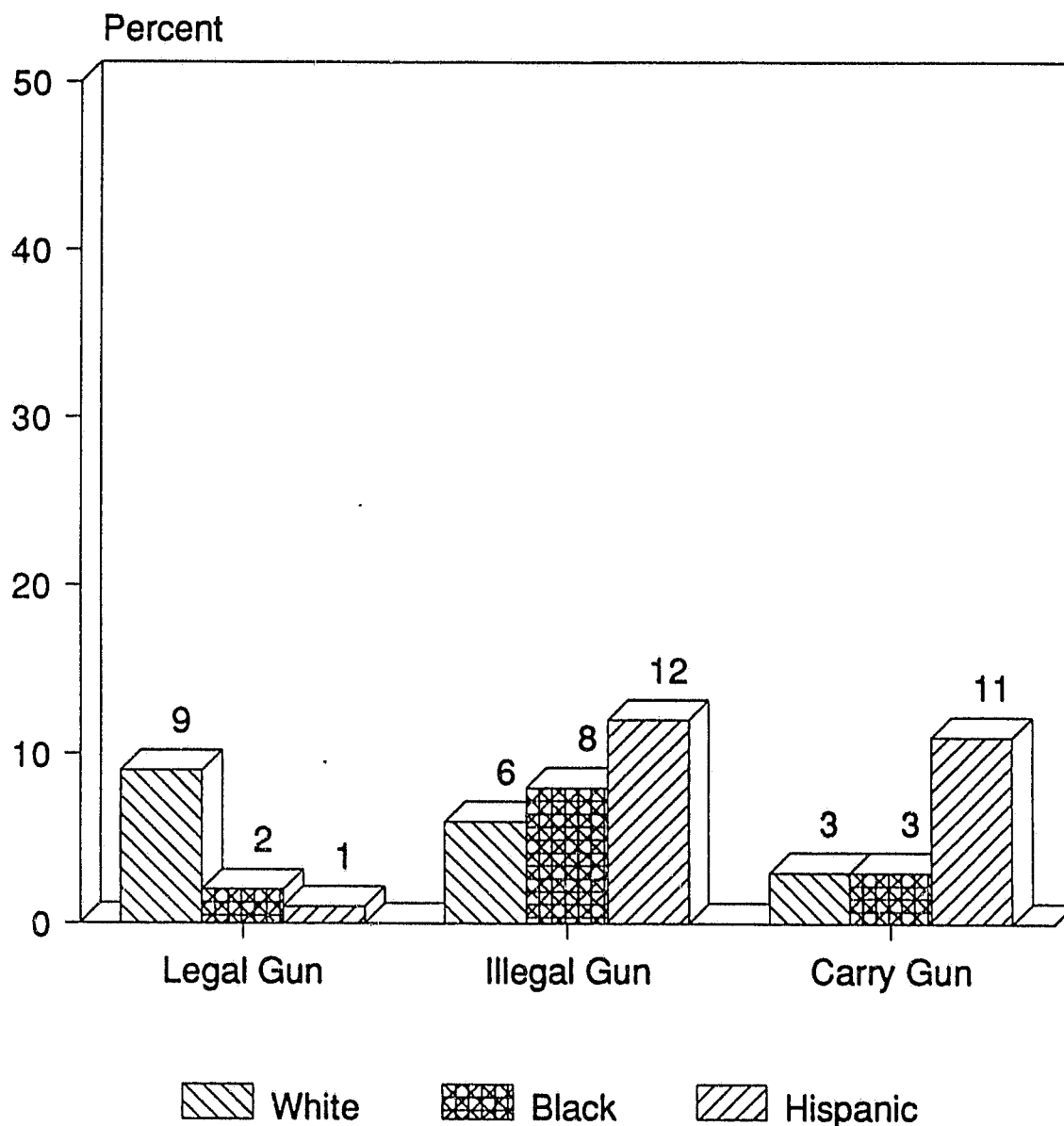
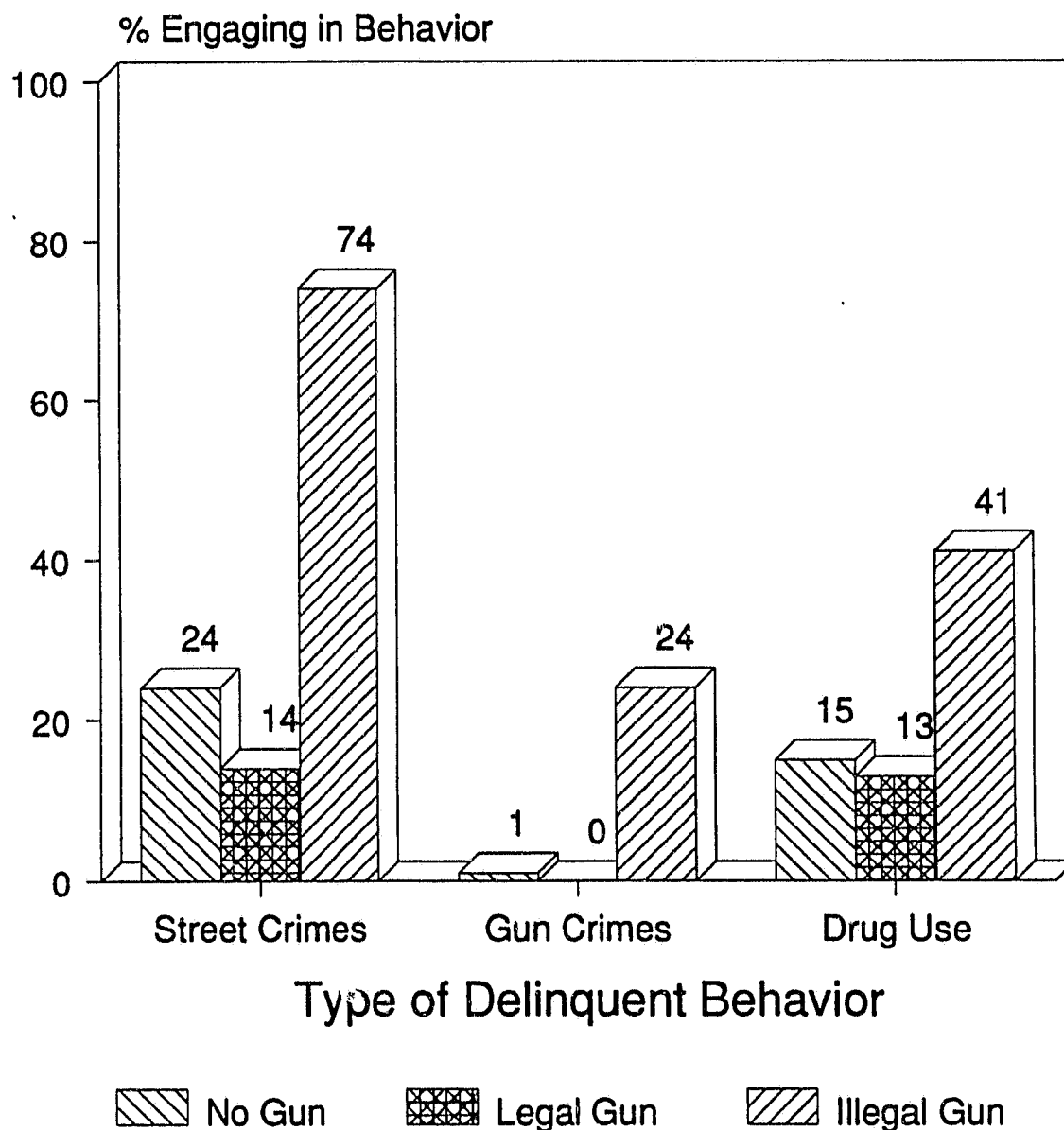


Figure 15.2 Relationship Between Type of Gun Owned and Percent Committing Street, Gun, and Drug Crimes.



Boys who own illegal guns are another matter. Seventy-four percent of boys who own illegal guns are involved in street crimes and 41 percent have used drugs. Perhaps most striking, 24 percent of boys who own an illegal gun report having actually used a gun in a crime. Clearly, owning an illegal gun puts one at much greater risk of involvement in drug use, street crime, and of using the gun in a crime. Furthermore, Figure 15.3 shows that only 8 percent of boys who do not own guns, and 7 percent of boys who own legal guns, are members of a juvenile gang. But over half (54 percent) of boys who own illegal guns are involved with gangs.

With such large numbers of boys owning illegal guns, and with illegal gun owners being so heavily involved in criminal activity, it seems imperative to determine how these boys come to learn to use guns legally and illegally. Figure 15.4 shows the relationship between type of guns owned and whether the parent owns a legal gun and whether the boy has a friend who owns a gun for protection. At these ages, friends who own guns for "protection" are by and large illegal owners. The findings are informative. First, boys who do not own a gun are unlikely to have parents who own a gun (13 percent), while boys who own legal guns are very likely to have a parent who also owns a legal gun (47 percent). This makes intuitive sense. Parents who own legal guns socialize their children into the legitimate gun culture. Those parents who do not own guns are unlikely to socialize their children in that manner. Furthermore, boys who do not own guns and those who own legal guns are about as likely to have a friend

Figure 15.3 Relationship Between Type of Gun Owned and Percent who are Gang Members.

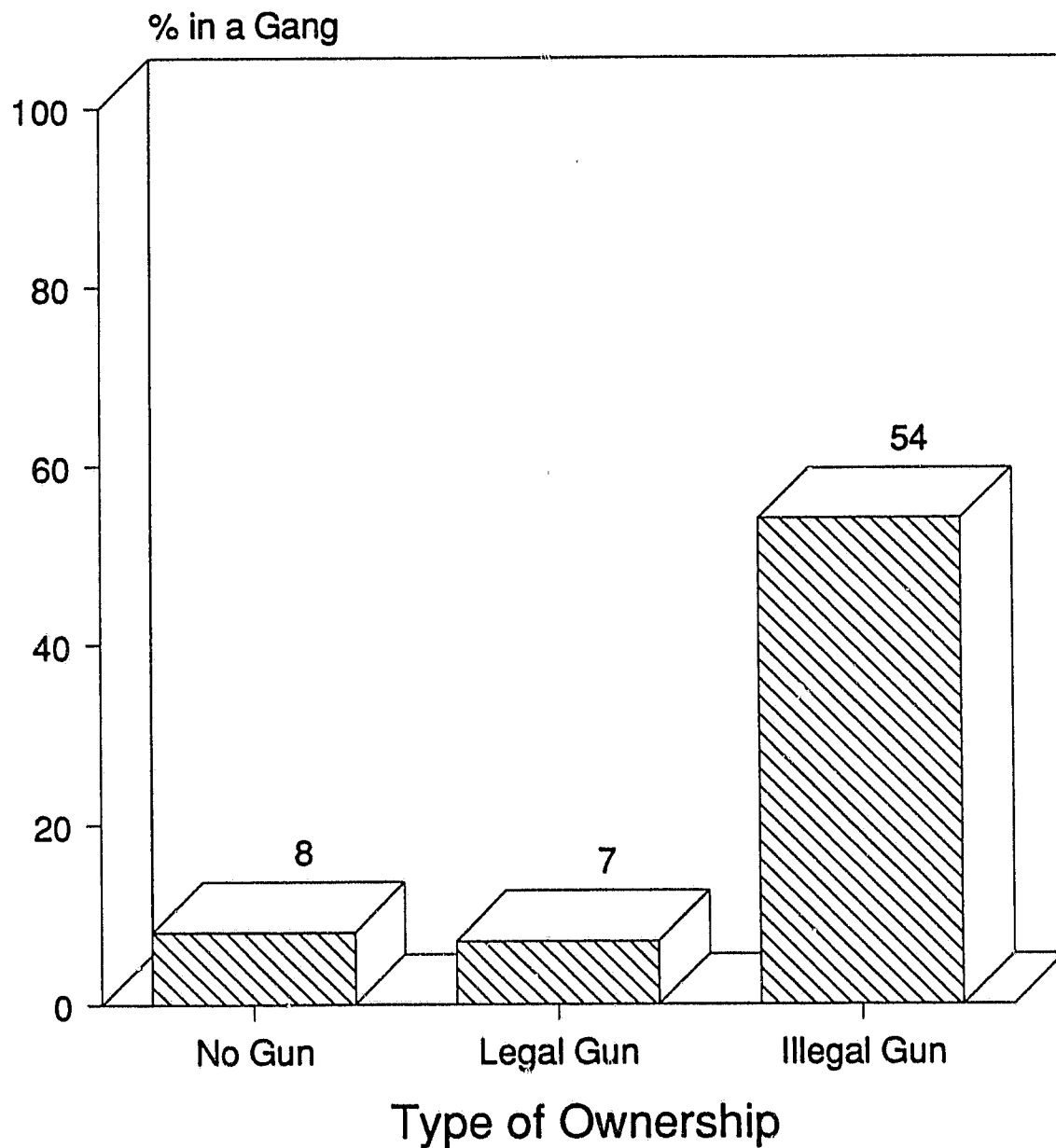
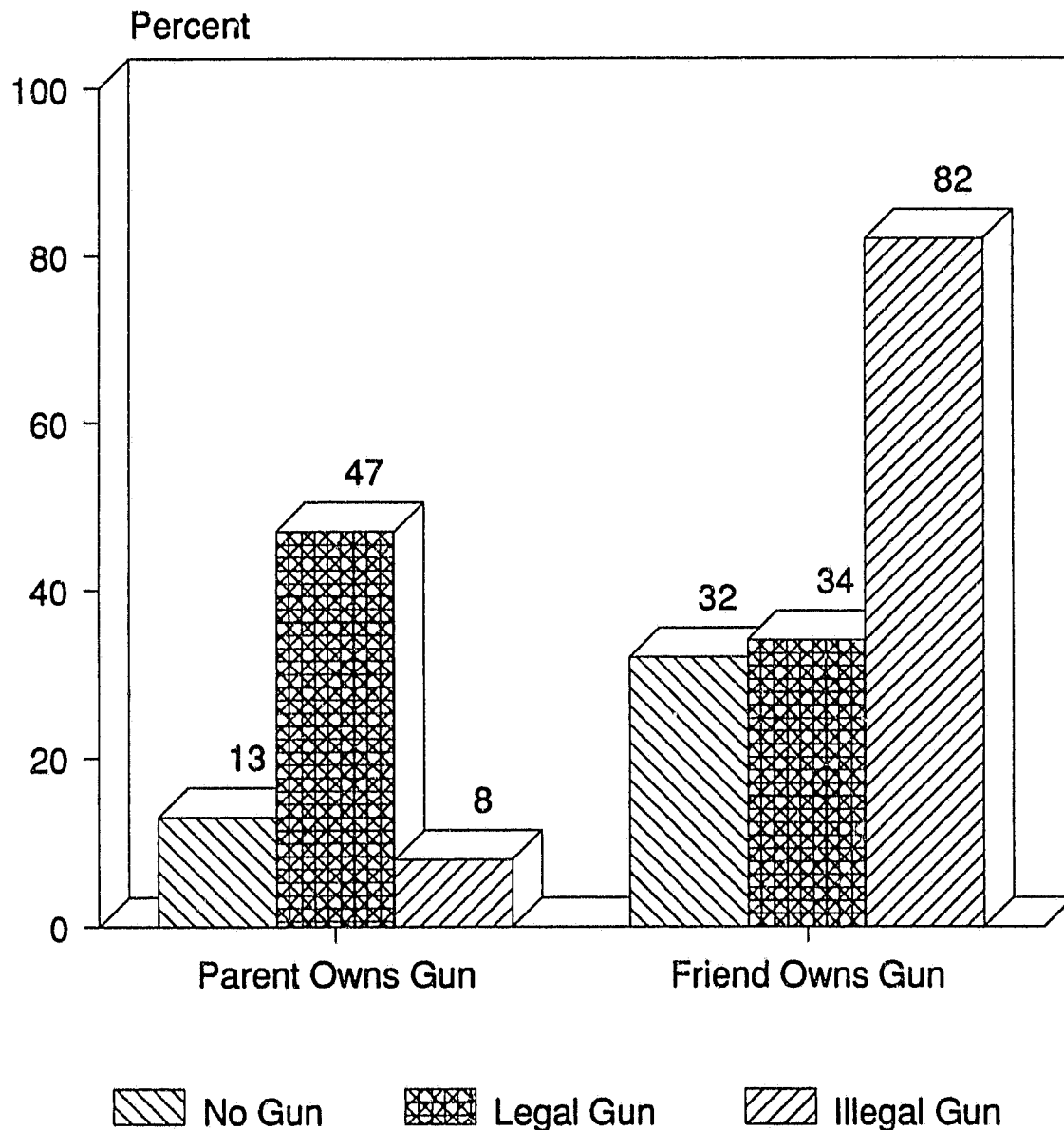


Figure 15.4 Relationship Between Type of Gun Owned and Percent Whose Parents and Friends Own Guns.



who owns a gun for protection (32 and 34 percent respectively). However, almost all boys (82 percent) who own illegal guns have friends who own guns for protection and they are very unlikely to have parents who own guns (8 percent).

The implications are clear. Socialization into legal gun use derives from the family and puts one at no greater risk of being involved in crime than not owning a gun at all. But socialization into illegal gun ownership derives from peer socialization outside of the home and places one at great risk for criminal activity and gun crime.

MULTIVARIATE ANALYSIS -- BOYS AND GUNS

This section confirms the former bivariate analysis with multivariate analysis. It also considers some other factors that may be responsible for illegal gun ownership and crime.

Table 15.1 contains the effects of statistically significant variables from logistic regression equations predicting illegal gun ownership and legal gun ownership.² The numbers reported reflect the percent change that one would expect in the variable being explained given a one unit change in the explanatory variable.

Recall that Wright and Rossi (1986) found some evidence that it may be peers as opposed to parents who socialize young criminals into illegal gun ownership and use. Conversely, Lizotte and Bordua (1980) and Bordua and Lizotte (1979) found evidence suggesting that parents socialize their children into

2. Table A15.2 in Appendix 15A reports the logistic regression equations for the interested reader.

Table 15.1 Change in Probabilities of Owning Legal and Illegal Guns (The mean of the dependent variable was used for probability transformations.)

Variable	Equation	
	Illegal Guns (Mean = .07)	Legal Guns (Mean = .04)
GANG	.42***	
PEER GUN OWNERSHIP	.27***	
PARENT'S EDUCATION	.03**	
WHITE	.10*	.15**
HISPANIC		.16**
INCOME Per \$1,000	-.05***	
PARENT'S SPORT GUN OWNERSHIP		.21***

* $p < .05$

** $p < .01$

*** $p < .001$

patterns of legal firearms ownership and use. In order to test these notions of family and peer socialization influences on patterns of adolescent firearms ownership the equations include measures of both parent's gun ownership for sport and protection, attachment to a male family member, and friend's gun ownership for protection. The equations also include measures of subject's and parent's delinquent values, along with subject's membership in a gang. All three of these are thought to be supportive of illegal gun ownership. Finally, the equations include race, ethnicity, family income and parent's education. Chi-square tests indicate that the models fit quite well.

The most striking aspect of the two equations is that they have almost no common significant predictors. The forces that motivated young boys to own legal and illegal guns are quite different. The strongest influences on illegal gun ownership are membership in a gang and peers' gun ownership for protection. Being in a gang increases the probability of owning an illegal gun by an astonishing 42 percent at the mean level of illegal gun ownership (7 percent). In other words, other things being equal, belonging to a gang increases the expected percentage of boys owning illegal guns from 7 to 49 percent! Similarly, having friends who own guns for "protection" increase the probability of ownership by 27 percent. There seem to be countervailing forces of social class on illegal gun ownership. While low income increases illegal gun ownership, higher parental education also increases it. Finally, whites are more likely to own illegal guns than blacks and Hispanics. However, these demographic

effects are tiny compared to the effects of friend's gun and gang membership.

Legal gun ownership is another matter entirely; socialization into legal gun ownership seems to come from the family. Having a parent who owns a legal gun increases the probability of a boy owning a legal gun by twenty-one percent at the mean of legal gun ownership (three percent). Other things being equal, Hispanics are the most likely to own legal guns, and whites are more likely than blacks.

So, the primary socialization agents for boys illegal gun ownership are gang membership and friend's gun ownership. On the other hand, boys are socialized into legal gun ownership by parents who own guns for sport. Moreover, parents legal gun ownership neither increases nor decreases the probability of boys illegal gun ownership. Gang membership and friend's gun ownership for protection have no effect on legal gun ownership. Both forms of socialization are specific and insular.

BOYS' GUNS AND CRIME

Whether boys own guns and for what reason would be uninteresting if the guns and the boys were not involved in crime. However, delinquent boys with guns, whether legal or illegal, are of great concern. Table 15.2 includes statistically significant variables from logistic regression equations predicting boys involvement in gun crime, street crime and minor delinquency. The numbers reported are changes in probabilities³

3. Table A15.3 in Appendix 15A provides the logistic regression equations for the interested reader.

Table 15.2 Change in Probabilities of Committing Gun, Street and Minor Crimes (The mean of the dependent variable was used for probability transformations.)

Variable	Equation		
	Gun Crime (Mean = .04)	Street Crime (Mean = .19)	Minor Crime (Mean = .30)
GANG	.65***	.55***	
DRUG USE		.16***	.28***
PEER GUN OWNERSHIP		.22***	.20***
WHITE		-.10*	
HISPANIC		-.10*	
ILLEGAL GUN	.12*	.25**	.20*

* $p < .05$ ** $p < .01$ *** $p < .001$

and, once again, are the amount of change one would expect at the mean value of the variable being explained given a one unit change in the explanatory variable. With a few exceptions variables that were included in the gun ownership equation are also included here. Income and parent's gun ownership for protection are excluded because they were so insignificant in the three equations that they impeded estimation. In addition, variables measuring drug use and family violence have been included on the assumption that they might motivate boys to become criminally involved in delinquency. Once again, the Chi-square tests indicate that the models fit well.

The results of these equations are rather astonishing. Despite a host of control variables that are used to filter out other possible causes of delinquency, illegal gun ownership, friend's gun ownership for protection, gang membership and drug use stand out as the primary predictors of gun crime, street crime, and minor delinquency. While friend's gun ownership for protection does not have an effect on gun crimes, it significantly increases the probability of boys' illegal gun ownership, and this in turn effects gun crime. Friend's gun ownership does increase the probability of committing street crimes and minor crimes (22 percent and 20 percent respectively). Friend's gun ownership also increases the probability of the boy's illegal gun ownership and, in turn, this further increases the probability of committing street crime and minor delinquency. Moreover, gang membership increases illegal gun ownership which in turn increases the probability that boys will commit all three

forms of crime. Gang membership increases the probability of committing gun crimes by 65 percent and it increases the probability of committing street crimes by 55 percent!

Legal gun ownership neither encourages nor discourages boys from committing any of these crimes, but illegal gun ownership and friend's gun ownership does. Moreover, illegal gun ownership has a moderate impact on gun crimes increasing the probability by 12 percent at the mean level of gun crime (4 percent). It has a sizable effects on street crimes (25 percent increase) and on minor delinquency (20 percent increase).

All in all, illegal gun ownership by boys plays an important role increasing the probability of gun crime. However, both boys' illegal gun ownership and friends' illegal gun ownership also play a roll in encouraging street crime and even minor delinquency. Perhaps boys who own illegal guns, or who hang around with those who do, are emboldened to engage in many forms of delinquency even if they do not directly involve the guns. Furthermore, friend's illegal gun ownership and gang activity have both socializing effects on boys' gun ownership and effects on boys' criminal activity. All of this is true despite a variety of controls for other causes of illegal behavior.

Finally, drug use increases the probability of committing street crime and minor crime. However, it does not have an effect on gun crimes. It remains to be seen if drug sales increase illegal gun ownership and gun crime, relationships which will be tested in the future.

SUMMARY

There are clearly two types of gun ownership among boys in Rochester. Boys who own legal guns are socialized by their parents and pose no threat to society. Boys who own illegal guns, however, outnumber the legal owners. In Rochester larger numbers of boys own illegal guns and carry them on a regular basis. They have friends who own illegal guns, are involved in gangs, and are disproportionately likely to commit gun crimes and other crimes. That is, boys who own illegal guns are part of a network of individuals who are heavily involved in guns and use their guns in crime. Furthermore, this activity has little to do with attachment to the father or parent's delinquent values.

POLICY IMPLICATIONS

A number of policy implications can be drawn from these findings. Among them are:

1. The identification of "marker variables" that isolate high-risk delinquents is important for channeling youth into treatment and intervention programs. The results in this chapter clearly suggest that illegal gun ownership is one such marker variable. Youth who illegally own guns are involved to a much greater extent than those who do not in gangs, crime and violence. Given all of this, it would seem prudent for the police and criminal justice system to deal most severely with boys who are caught with illegal guns. The sanctions imposed by the criminal justice system should be independent of the concerns about family and home life that usually play a role in juvenile

court settings. Those factors seem to have little to do with boys involvement in illegal guns and crime.

2. It is illegal gun ownership, not legal gun ownership, that puts boys at risk to commit crime. Because of that, programs to control the ownership of illegal guns are warranted. But programs to reduce gun ownership need not be across the board, treating ownership of all guns alike. Youth who own legal firearms are no more likely to be delinquent than those who do not. Thus, general policies should not be targeted at youth (and their fathers) who own guns for legitimate purposes. Illegal guns are another matter, however, and they should be targeted for elimination.

3. Since youth who own illegal guns carry them regularly, institutions, especially schools, that deal with youth regularly should attempt to proactively confiscate illegal weapons. While this is not a policy for all places, random use of metal detectors in urban schools where there may be a sizeable problem, should be considered. Although somewhat intrusive it may be a necessary countermeasure to the carnage in our cities' streets where the problem is most pronounced.

4. Confiscating an illegal gun is not sufficient however since illegal gun ownership is so highly related to other forms of delinquency. In addition to confiscation, schools and other agencies should work with illegal gun owners to reduce gang membership and general involvement in delinquent behavior. One mechanism for doing this may be the education process itself. If researchers found that 7 percent of ninth and tenth grade

students in a particular city possessed heroin or crack, and that half of those used these drugs on a regular basis, few would question the need for educational programs directed at the problem. In fact, fewer than 7 percent of children use heroin or crack, yet the DARE program, and others like it, are designed to provide an educational response to a very real problem. Given the magnitude of illegal gun ownership among youth, their propensity to carry and use those guns in crime, and the implications of that use for life and limb, gun education programs in schools seem justified.

5. Finally, given the potential significance of these findings and their importance for current policies, it is important to gauge the generalizability of these results through replication at other sites in the future.

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CHAPTER 16

ADOLESCENT EMPLOYMENT AND DELINQUENCY

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The belief that work is good for youth and that job or work programs provide good delinquency and gang prevention programs appears widespread. There are many reasons underlying this belief. It is assumed that work, or employment for pay, provides bonding and learning experiences in a prosocial environment. Thus, youth become attached to the social order, adopt prosocial behaviors, and become integrated into conventional society. It also is assumed that work is important because it teaches values, builds character, and it may help youth learn how to obtain and keep a job. Furthermore, work keeps youth busy and "off the streets", providing less time for delinquent activities and provides legal ways to get financial rewards so that illegal means are not necessary. Thus, for many reasons juvenile work or employment programs are popular as delinquency prevention strategies. "The youth of today would be o.k., if they just had a job," or so goes conventional wisdom.

Unfortunately, the faith placed in youth employment as a delinquency intervention strategy is not generally supported by empirical findings over the last several decades. The relationship between lack of employment and crime or drug use found among adults does not seem to hold for adolescents. Studies in the United States that have examined adolescent employment, delinquency, and drug use in general population samples find that working youth have equal or higher levels of delinquency and drug use than their non-working counterparts; and the conclusion of most evaluations of work programs is that the programs have had at best no effect on the delinquent behavior of targeted youth.

As illustrations, Shannon (1982) found, in a sample from Racine, Wisconsin, that employment during high school was positively related to delinquency, and that those employed had more police contacts. Data from the National Youth Survey, a longitudinal study based on a national sample, found both minor and serious delinquency to be higher among working than non-working juveniles up to age 18-19 (when a reverse trend was beginning for serious crime) and the difference increased with increasing levels of work (Wofford, 1988). Unpublished data from the National Youth Survey indicates similar findings for drug use. Greenberger et al., (1982) found in a Southern California school sample that employment was related to increased alcohol and drug use. In a large school sample in 17 cities, Gottfredson (1984) found that employed youth were neither more delinquent nor

less delinquent than non-employed youth. Recently, Steinberg and Darnbusch (1991) report, based on a large sample of high school students from Wisconsin and California, that youngsters who work more hours per week have higher rates of delinquency and alcohol and drug use. (Although not indicated in their report, the differences between non-workers and those with varying levels of work are small and maybe inconsequential.) Thus, overall there is little indication that employed youth are less delinquent and some indication that they may be more delinquent than their non-employed counterparts.

Evaluation studies of employment programs provide mixed findings, but the majority of these also indicate little positive effect from the programs. Evaluation of some residential Job Corps programs produced evaluations that indicated some success in reducing criminal behavior. However, other evaluations of employment programs and Supported Work Programs (for out of school youth) indicated either no effect or a detrimental effect of these programs on delinquency (Robin, 1975; Betsey et al., 1985). Other evaluations of supervised work programs and work experience programs reported either no effect in reducing delinquency rates (Elliott and Knowles, 1978) or increased delinquency rates among those in the work program (Hackler and Hagan, 1975).

Although the survey and evaluation research findings concerning employment and delinquency are not extensive and some can be criticized on methodological grounds, there is a

consistency suggesting that work experiences are not related to decreases in delinquency and some suggestion that work may, in fact, increase delinquency.

FINDINGS FROM THE DENVER AND ROCHESTER PROJECTS

Additional information about the work-delinquency relationship is provided by data from the Denver Youth Survey and the Rochester Youth Development Study. Data are available for three years from the Denver site and for Wave 6 (during the third year) from the Rochester site. The samples used are the youth samples of each study, and as in other chapters, the focus is on street crime. The questions asked at each site have some variation. In Denver, questions were asked about employment during the entire year and in Rochester, questions were asked about current employment. As a result there are some differences in the proportion of youth that report information about employment at each site. This difference, however, would not be expected to provide major differences in findings.

The percentage of working and non-working youth that are involved in street crime is given for the total samples and for males and females in Table 16.1. As illustrated in that table, in Denver, a greater percentage of the working group are street offenders for the total sample and for both boys and girls. The differences between groups is also statistically significant at the Denver site for all three years for the total sample, and for two years for the males. Thus, for both sexes, the prevalence of delinquency is as large or larger among those youth that are employed as it is among the non-employed youth. In Rochester,

Table 16.1 Percent of Workers and Non-workers that are Street Offenders

TOTAL SAMPLES			
Percent Street Offenders			
<u>DENVER</u>	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
Not Working	10.4	12.8	12.8
Working	17.8**	17.8*	20.3***
<u>ROCHESTER</u>	<u>WAVE 6</u>		
Not Working	14.8		
Working	11.0		

MALES			
Percent Street Offenders			
<u>DENVER</u>	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
Not Working	13.2	18.9	20.7
Working	24.1**	24.5	33.3**
<u>ROCHESTER</u>	<u>WAVE 6</u>		
Not Working	18.3		
Working	13.7		

FEMALES			
Percent Street Offenders			
<u>DENVER</u>	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
Not Working	7.6	6.2	9.7
Working	10.4	10.1	11.0
<u>ROCHESTER</u>	<u>WAVE 6</u>		
Not Working	3.6		
Working	5.1		

the findings indicate that a slightly greater proportion of non-workers than workers in the total sample report involvement in street offenses, and that this holds for males as well. For females, slightly more workers than non-workers report involvement in street crime. None of the differences in Rochester are statistically significant. In data not shown, similar findings were also found for different age and race groups across the two sites.

Based on these joint findings, it seems reasonable to conclude (on the basis of the statistical evidence) that a greater proportion of workers are street offenders or that the proportion of workers that are street offenders is roughly the same as the proportion of non-workers that are street offenders. Importantly, there is essentially no evidence that work is associated with decreased levels of delinquency.

Similar findings occur for drug use. The prevalence of alcohol use, marijuana use, and other drug use among working and non-working youths is given in Table 16.2. In Denver, with but one exception, the use of alcohol, marijuana, and drug use is significantly higher in the working group than in the non-working group (the one exception being marijuana use in Year 1). In Rochester, the only significant difference between working and non-working groups occurs for alcohol use among females. In this case a greater proportion of workers are alcohol users. Thus, as with delinquency, there is no indication that work is associated with reduced levels of alcohol or drug use.

Table 16.2 Percent of Workers and Non-Workers that are Alcohol, Marijuana or Other Drug Users

		N	<u>YEAR 1</u>			<u>YEAR 2</u>			<u>YEAR 3</u>		
			Alcohol	Marijuana	Other Drugs	Alcohol	Marijuana	Other Drugs	Alcohol	Marijuana	Other Drugs
<u>TOTAL SAMPLES</u>											
DENVER											
Not Working	383	23.7	12.7	1.3	23.9	10.0	1.5	20.8	6.8	1.0	
Working	481	34.3***	13.3	3.6**	40.0***	18.0***	4.4*	33.5***	13.7***	4.0***	
ROCHESTER											
Not Working	629							36.0	<u>WAVE 6</u> 10.8	1.8	
Working	252							39.4	9.6	1.3	
<u>MALES</u>											
DENVER											
Not Working	190	25.1	13.3	2.0	25.9	10.5	0.6	30.1	11.7	0.6	
Working	261	31.0	10.4	3.1	39.9**	19.2**	4.1*	41.8	18.5	6.0	
ROCHESTER											
Not Working	464							43.6	<u>WAVE 6</u> 13.1	2.4	
Working	187							37.1	9.1	1.7	
<u>FEMALES</u>											
DENVER											
Not Working	192	22.2	12.1	0.6	21.7	9.4	2.5	26.6	8.1	1.8	
Working	220	38.2***	16.8	4.2*	40.1***	16.6*	4.8	37.0*	14.7*	3.4	
ROCHESTER											
Not Working	302							28.7	<u>WAVE 6</u> 8.3	1.1	
Working	120							41.6*	9.5	0.8	

In data not presented, essentially equivalent findings are also observed for delinquency level (the working group contains a higher percentage of other serious offenders and a higher percentage of minor offenders) and by age (similar effects are found at all age levels). Similar findings are also found at the Denver site by work during the school year and during the summer and by amount of time spent working, with delinquency increasing with increasing levels of employment, as illustrated in Table 16.3. Similar findings occur with higher levels of work at the Rochester Site, as illustrated in Table 16.4.

It should be noted that all of the above findings are cross-sectional. Using the Denver data, we also examined what would happen when an unemployed street offender in Year 1 obtains a job in Year 2. Of the unemployed street offenders in Year 1 who obtained work in Year 2, 48 percent maintained their street offending classification in Year 2, while only 36 percent of those who did not obtain a job remained in this more serious delinquency classification. Although not statistically significant, this finding suggests that unemployed street offenders who obtain a job are as likely, if not more likely, to continue their level of offending as similar youth who do not obtain a job.

DISCUSSION/RECOMMENDATIONS

Considering all of these findings, what conclusions seem warranted? First, it should be noted that there is nothing in

Table 16.3 Proportion of Youth in the Denver Youth Survey
Engaged in Different Types of Delinquency and Drug Use
During the School Year and Summer by Level of Employment*

SCHOOL YEAR

<u>YEAR 1</u>	<u>NOT EMPLOYED</u> (N=517)	<u>LOW EMPLOYED</u> (N=245)	<u>HIGH EMPLOYED</u> (N= 87)	<u>SIG</u>
Street Offenses	7.6	14.9	14.6	*
Serious Offenses	25.1	36.7	43.6	***
Minor Offenses	44.1	54.8	66.8	***
Drug Use	9.8	10.6	19.8	

<u>YEAR 2</u>	<u>NOT EMPLOYED</u> (N=474)	<u>LOW EMPLOYED</u> (N=220)	<u>HIGH EMPLOYED</u> (N= 92)	
Street Offenses	8.8	15.7	15.7	
Serious Offenses	21.8	31.3	28.3	
Minor Offenses	44.9	58.2	66.4	***
Drug Offenses	8.6	13.4	16.9	

<u>YEAR 3</u>	<u>NOT EMPLOYED</u> (N=679)	<u>LOW EMPLOYED</u> (N=292)	<u>HIGH EMPLOYED</u> (N=113)	
Street Offenses	10.2	13.0	11.6	
Serious Offenses	23.2	27.2	33.6	
Minor Offenses	44.9	56.2	75.0	***
Drug Use	7.6	10.4	13.3	

SUMMER

<u>YEAR 1</u>	<u>NOT EMPLOYED</u> (N=600)	<u>LOW EMPLOYED</u> (N=165)	<u>HIGH EMPLOYED</u> (N= 87)	<u>SIG</u>
Street Offenses	7.1	12.8	17.8	*
Serious Offenses	26.9	25.4	29.6	
Minor Offenses	21.0	29.3	33.4	*
Drug Use	9.2	6.8	17.6	

<u>YEAR 2</u>	<u>NOT EMPLOYED</u> (N=495)	<u>LOW EMPLOYED</u> (N=161)	<u>HIGH EMPLOYED</u> (N=127)	
Street Offenses	8.9	9.6	8.1	
Serious Offenses	20.2	22.9	23.4	
Minor Offenses	20.3	30.9	28.2	*
Drug Use	8.8	14.3	13.1	

<u>YEAR 3</u>	<u>NOT EMPLOYED</u> (N=679)	<u>LOW EMPLOYED</u> (N=214)	<u>HIGH EMPLOYED</u> (N=190)	
Street Offenses	7.7	13.7	18.7	***
Serious Offenses	18.3	28.3	28.4	**
Minor Offenses	19.6	30.1	33.0	***
Drug Use	5.8	9.1	16.7	***

*High Employed is the upper quartile for each year and period (greater than 12 hours per week in the summer and 16-24 hours in the school year, depending on year and period) and Low Employed is all other working youth.

Table 16.4 Proportion of Youth in the Rochester Youth Development Study Engaged in Different Types of Delinquency by Level of Employment*

<u>WAVE 6</u>	<u>NOT OR LOW EMPLOYED</u> (N=654)	<u>HIGH EMPLOYED</u> (N=222)	<u>SIG</u>
Street Offenses	13.0	15.8	
Serious Offenses	25.3	31.1	
Minor Offenses	28.2	33.6	

*High Employed is the upper quartile (greater than 25 hours per week) and non or low employed is all other working youth.

the findings presented (or in previous studies) to allow a conclusion that work causes delinquency or drug use. Exactly what role work plays in the developmental sequences across the adolescent years is uncertain, and will require additional data collection and analyses within the overall Program of Research, as well as in other research efforts. Also, the findings are applicable to adolescents and not to adults. Second, there is a consistency of findings across sites and across previous studies, that teenage employment is not associated with reduced levels of delinquency. In fact, some results suggest that there may be a positive relationship between employment and delinquency.

These conclusions are most troubling, since work programs are often suggested as a way to combat delinquency or prevent gang activity. However, the empirical findings reported here and across several decades indicate that work or job programs do not and would not be expected to provide a particularly viable delinquency prevention strategy. Thus, a note of caution about the effectiveness of these programs is in order.

Given the popularity of work programs and the often made and apparently incorrect assumption that "if kids only had jobs, they wouldn't be delinquent", it is important for communities planning such programs to carefully consider the experience and lack of success of previous similar efforts and to be aware that work programs are not a panacea for delinquency or gang prevention. Based on this and previous research, there is little indication that such programs will do any good.

Also, given the lack of research in this area, it would be of utmost importance that the outcome of any work programs that are implemented be carefully evaluated - preferably with randomized experimental designs; and that basic research be conducted to understand how jobs fit into adolescent development, and how adolescent work experience may relate to employment status and crime as young adults. Clearly greater knowledge is needed if we are ever going to successfully employ work as a delinquency prevention strategy, and to understand how and when employment leads to successful constructive lives.

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CHAPTER 17

**CARETAKERS' HELP SEEKING FOR
BOYS WITH DISRUPTIVE AND DELINQUENT BEHAVIOR**

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PREFACE

This chapter examines the help seeking behavior of caretakers of children and adolescents for help with behavioral, mental health and drug use problems. An extensive examination of help seeking is provided from the Pittsburgh Youth Study and forms Part 1 section of this chapter. Part 2 contains a brief description of related findings from the Denver Youth Study indicating the replication of certain findings across sites. Given the importance of help seeking and the availability and use of services, the correspondence between sections is important in illustrating the greater generality of findings.

CHAPTER 17, PART 1

CARETAKERS' HELP SEEKING FOR
BOYS WITH DISRUPTIVE AND DELINQUENT BEHAVIOR

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INTRODUCTION

In recent years, the mental health of children has become a subject of national concern (U.S. Congress, Office of Technology Assessment, 1986; U.S. Department of Health and Human Services, 1990). Not only is there concern about the high prevalence of mental health problems in youngsters, there is also concern about the availability and adequacy of mental health services for families of troublesome and troubled children and adolescents (Duchnowski & Friedman, 1990).

The prevalence rates, found in recent literature, for caretakers' help seeking, vary depending on the sample, the age range, and the kind of help included. Zill and Schoenbrun (1990), in a survey of over 17,000 children aged 3 to 17 in the U.S. found that 10 percent of all children, or about three quarters of those with emotional or behavior problems, had ever received treatment from a psychiatrist, psychologist, doctor, or counselor for these problems. Five percent had received help within the past twelve months, but no breakdown by age was given by the authors. In the Dunedin study (McGee et al., 1990) parents reported that 11.8 percent of the 15-year-old boys had been referred for some kind of help over the past two years.

Sources of help included psychiatric services, medical practitioners, social workers, school counsellors, or teachers. Forty eight percent of the boys and girls who had a parent-confirmed psychiatric disorder had received help. In the Ontario Child Health Study (Offord et al., 1987) help seeking, defined as a consultation within the past six months with the staff of a mental health or a social services organization, occurred for 5.2 percent of the boys not diagnosed as having a psychiatric disorder compared with 18.1 percent of the boys who had been diagnosed, resulting in an overall prevalence rate of 7.8 percent. Several studies (Langner et al., 1974; Rutter, Tizard, & Whitmore, 1970) have stressed that large proportions of youngsters needing help do not receive it. The government publications (U.S. Congress, Office of Technology Assessment, 1986; U.S. Department of Health and Human Services, 1990), referred to above also make the point that service delivery for children with mental health problems is inadequate.

Most studies have considered help seeking as either having been present or absent. However, some of the youngsters, considered as having received help, may have had such limited contact with a help provider as to throw doubt on the possible usefulness of the help seeking. It is a well-known fact in clinical practice that many help seekers do drop out of treatment before any benefits could have been expected (Kolko, Parrish, & Wilson, 1985). Moreover, many people lack the financial resources or the skills to avail themselves of professional help.

In addition, information is also lacking on less formal sources of help, such as from family members, friends or a minister.

What is the prevalence of child problem behavior requiring help? Again, estimates vary widely depending on the time period, the method of diagnosis, the respondent(s) used, and the kind of problem included. An often quoted estimate is that by Gould, Wunsch-Hitzig, and Dohrenwend (1981) who suggested 11.8 percent as a likely lowest estimate for psychiatric disorders in community populations of children. Since that time, several authors (Costello, 1989; McGee et al., 1990; Offord et al., 1987) have reviewed the available literature, and concluded that the overall prevalence seems to be closer to 20 percent. However, the most frequently used index is some kind of psychiatric diagnosis, often based on parent report only. This may result in an underestimate of delinquent children whose parents are not aware of the extent of their antisocial activities. As a consequence may not seek help.

In this chapter we have brought together information on caretakers' help seeking for children with a psychiatric diagnosis of Disruptive Behavior Disorder and for children who were delinquent. The express purpose of including both the psychiatric and the juvenile justice points of view was to underscore that they are two valid and overlapping approaches to assessing childhood maladjustment. Therefore, it is important that the two view points should be combined to provide a more complete picture of problem behaviors as well as caretakers' help

seeking.

This chapter addresses the following questions:

- 1) What were the problems that prompted caretakers of the boys to seek help in the past, and from whom?
- 2) How frequent were the help contacts?
- 3) What proportion of the caretakers had sought help for boys with a diagnosis of Disruptive Behavior Disorder?
- 4) To what extent was caretakers' help seeking a function of the boys' seriousness level of delinquency?

These questions were answered through a community survey of 1,517 boys spread over three grades. The data to be used in this chapter come from the first six assessment waves of the Pittsburgh Youth Study. Information on the boys' behaviors was gathered from the boys themselves, their caretakers and teachers, while the caretakers also provided life-time information about help seeking for the boys.

METHODS.

SUBJECTS.

The subjects have been described in Chapter 2. Data were used from all three samples of boys who were in grades 1, 4, and 7, respectively, when the study began (called the youngest, middle, and oldest samples).

MEASURES AT SCREENING (8).

Caretaker. An enlarged version of the Child Behavior Checklist (Extended CBCL) was administered (Achenbach, 1978; Achenbach & Edelbrock, 1979, 1983). The CBCL is a 112-item questionnaire

about a wide range of child behavior problems. However, specific delinquent behaviors and concealing rather than aggressive antisocial behaviors, such as various forms of dishonesty and minor forms of property infraction, were under-represented in this scale. Therefore, 88 items were added in this study to cover concealing antisocial behaviors and most of the behaviors from the Self-Reported Delinquency Scale. The time frame for the Extended CBCL was the past six months. In addition, an 'ever' scale was administered for 21 discrete antisocial items.

Teacher. Teachers completed an extended version of the Teacher Report Form (Extended TRF), complementary to the CBCL (Edelbrock & Achenbach, 1984). Twenty three delinquent and concealing antisocial behavior items were added to this scale in order to increase its comparability with the child and caretaker reports. The time frame for the TRF was the same as for the caretaker CBCL.

Child. Boys in the oldest sample were administered the revised versions of the National Youth Survey 40-item Self-Reported Delinquency Scale (SRD), described in the Method chapter. In addition, the boys in the oldest sample were administered the 112-item Extended Youth Self-Report (Extended YSR), which measures various dimensions of psychopathology and is similar to the CBCL (Achenbach & Edelbrock, 1987).

For boys in the youngest and middle samples the Self-Reported Antisocial Behavior Scale (SRA) (Loeber et al., 1989), also described in the Methods chapter.

MEASURES AT SUBSEQUENT ASSESSMENTS.

The following measures from the S assessment were repeated at the subsequent assessment waves: for the oldest boys, the Self-Reported Delinquency Scale and the Extended YSR; for the youngest boys, the Self-Reported Antisocial Behavior Scale; for the caretaker, the Extended CBCL, and the Demographic Questionnaire; and for the teacher, the Extended TRF. For the middle sample the Self-Reported Delinquency Scale was administered for the first time at wave A, replacing the Self-Reported Antisocial Scale administered at wave S.

Diagnostic Interview Schedule for Children, Parent Version (DISC-P). At assessment A we administered to the caretaker the DISC-P (Costello, Edelbrock, & Costello, 1985). The DISC was developed as a measure of child psychopathology to be administered by lay interviewers in epidemiological surveys. The DISC-P was revised by Costello (1987) to cover most forms of child psychopathology contained in DSM-III and DSM-III-R (American Psychiatric Association, 1982, 1987). Not covered were anxiety and relatively rare disorders such as psychosis.

Help-seeking for Subjects' Mental Problems. At assessment A, life-time and past six months information was obtained from the caretaker on help seeking for the boys' mental problems. Any help sought for mental problems was extensively recorded with the reasons for seeking the help, the type of provider, and the frequency of the help seeking. The problems of the boys leading to seeking help were categorized as follows: a) Behavior, such

fighting, oppositional behavior, or truancy; b) Alcohol or Drugs; c) Hyperactivity, encompassing both overactivity and attention problems; c) Learning, such as specific learning disabilities as well as general learning problems; d) Depression/suicide attempts; e) Anxiety/nervousness; f) School adjustment, such as difficulty adjusting to a new school or teacher; g) Family adjustment, encompassing problems arising from changes in family constellation, or reactions to tensions or family events; h) Speech; and i) Enuresis/encopresis. The category Any Problem is used to denote any help seeking regardless of the nature of the problem.

Sources of help were divide into five groups; a) Friend/Relative/Minister; b) School Personnel, such as a teacher, principal, or school social worker; c) Family doctor or pediatrician; d) Counselor, psychologist, or psychiatrist, not involving hospitalization (this category will also be referred to as mental health professional), ; e) Hospitalized; and f) Other, for those cases where the caretaker was not able to be specific.

Delinquency Seriousness Classification. This construct combines information from different sources and assessment waves. Boys were classified according to the most serious level of offending reached by the time of assessment A, based on a lifetime estimate obtained at S, supplemented with data covering the six months between the S and the A assessment. The life-time level of seriousness of delinquency correlated highly with other indices of delinquent involvement such as frequency and variety

of delinquent acts. The rationale for selecting seriousness as our index stems from the fact that the onset of more serious delinquent behaviors generally occurs later than the onset of less serious behaviors, thereby forming a scale of delinquent development. The information on delinquent behaviors used for this classifications came from the Self-Reported Delinquency Scale and the Antisocial Behavior Scale of the boys, the caretakers' Extended CBCL, teacher Extended TRF, and, for the boys in the oldest sample, the Extended YSR. Status offenses and minor behaviors that were not likely to bring a boy in contact with the police were excluded.

With the severity ratings developed by Wolfgang, Figlio, Tracey, & Singer (1985) as a guide, a distinction was made between five levels of seriousness of offending (and a nondelinquent level). Level 1 consisted of no delinquency or minor delinquency committed at home, such as stealing minor amounts of money from one's parent's purse or minor vandalism at home, Level 2 consisted of minor delinquency outside of the home, including minor forms of theft such as shoplifting and stealing something worth less than \$5, and vandalism and minor fraud, such as not paying for a bus ride. Level 3 consisted of moderately serious delinquency such as any theft over \$5, gang fighting, carrying weapons, and joyriding. Level 4, the category of serious delinquency, comprised behaviors such as car theft, breaking and entering, strongarming, attacking to seriously hurt or kill, forced sex and selling drugs.

Dynamic Classification of Offenders. A delinquency classification with four levels over several points in time can produce a large number of possible change patterns. In order to reduce the possible patterns, we settled on two classifications by collapsing assessment waves. Subjects were first categorized according to the highest level of offending they had ever committed up to wave A, and then were also categorized according to the worst offense they had committed in the two-year period after assessment A.

The next step was to classify the boys in mutually exclusive groups on the basis of their offense pattern over time. First, three groups of stable individuals were formed: Stable Non-delinquents, those who were nondelinquent or had only committed minor delinquency at home at screening and in the following period, and two categories of stable offenders, namely the Stable Moderates (those at Level 2 or 3 at screening who stayed at that level during the following period), and the Stable Highs (those who continued offending at Level 4).

We also formed two groups of offenders whose seriousness of offending increased over time. The nondelinquent boys at wave S, who started offending during the following period were called Starters. Those boys who were already offending at wave S, and whose seriousness level of offending had increased were called the Escalators. Further, we distinguished between two groups of boys whose offending decreased over time. One group consisted of those boys whose level of seriousness of offending decreased, but

continued to be delinquent at a lower level of seriousness (called De-escalators). Another group consisted of those delinquent boys at wave S, who were not classified as delinquent in the later period (called Desistors). Collectively, the seven groups will be referred to as the dynamic classification of delinquency. Details of these classification procedures can be found in Loeber, Stouthamer-Loeber, Van Kammen, and Farrington (1991).

RESULTS

HELP SEEKING.

Table 17.1 shows the life-time and six-months prevalence rates of caretakers' help seeking for different child problem behaviors. It is to be expected that the older the boys, the higher are the life-time prevalence estimates of help seeking. Table 17.1 shows that the life-time prevalence of caretakers having sought help for any problem behavior of the boys increased with age from 27.1 percent for the youngest boys to 37.1 percent for the oldest boys. The increase in help seeking with age was most marked for behavior problems; almost twice as many caretakers had sought help for the oldest boys as compared to the youngest boys (20.7 percent. vs. 11.1 percent). Help seeking for school adjustment also increased with age (2.7 percent, 4.4 percent, and 5.9 percent for the three samples, respectively). Similar increasing prevalence rates applied to help seeking for depression/suicide attempts, and help seeking for family adjustment problems. An exception was help seeking for

Table 17.1 Prevalence of Help Seeking by Kind of Problem

Kind of Problem	Time frame	Samples					
		Youngest (N=503)		Middle (N=508)		Oldest (N=506)	
		percent	SE*	percent	SE	percent	SE
Any problem	life-time	27.1	(2.0)	34.8	(2.1)	37.1	(2.7)
	six-months	12.4	(1.5)	16.3	(1.6)	15.8	(1.6)
Behavior	life-time	11.1	(1.4)	15.5	(1.6)	20.7	(1.8)
	six-months	4.8	(1.0)	8.7	(1.2)	8.5	(1.2)
Alcohol or drugs	life-time	.0	(.0)	.3	(.2)	.7	(.4)
	six-months	.0	(.0)	.3	(.2)	.7	(.4)
Hyperactivity	life-time	3.7	(.8)	4.0	(.9)	2.1	(.6)
	six-months	2.0	(.8)	1.9	(.6)	.3	(.2)
Learning	life-time	5.9	(1.1)	6.4	(1.1)	5.1	(1.0)
	six-months	2.3	(1.1)	3.4	(.9)	1.6	(1.0)
Depression/suicide attempts	life-time	1.0	(.5)	2.9	(.7)	4.1	(.9)
	six-months	.2	(.2)	1.7	(.7)	1.9	(.9)
Anxiety/nervousness	life-time	1.5	(.5)	1.6	(.6)	1.9	(.6)
	six-months	.6	(.3)	1.1	(.6)	.8	(.6)

* SE = Standard Error in %.

Table 17.1 (continued)

Kind of Problem	Time frame	Samples					
		Youngest (N=503)		Middle (N=508)		Oldest (N=506)	
		percent	SE*	percent	SE	percent	SE
School adjustment	life-time	2.7	(.7)	4.4	(.9)	5.9	(1.1)
	six-months	1.3	(.5)	1.1	(.5)	2.6	(.7)
Family adjustment	life-time	2.7	(.7)	3.4	(.8)	5.2	(1.0)
	six-months	1.1	(.5)	.8	(.4)	1.6	(.6)
Speech	life-time	2.0	(.6)	.9	(.4)	.8	(.3)
	six-months	1.8	(.4)	.3	(.3)	.3	(.2)
Encopresis/enuresis	life-time	.6	(.4)	.4	(.3)	.5	(.3)
	six-months	.2	(.2)	.1	(.2)	.0	(.0)

* SE = Standard Error in %.

hyperactivity where less help had been sought for the oldest, as compared to the middle and youngest samples (3.7 percent vs. 4.0 percent and 2.1 percent, respectively).

When a six-months time frame for help seeking was used, the differences between the samples largely disappeared. Thus, help seeking for any problem ranged from 12.4 percent for the youngest sample to 16.3 percent for the middle sample, and 15.8 percent for the oldest sample. Behavior problems were the most frequent reasons for seeking help. However, caretakers of boys in the middle and oldest samples sought more help for behavior problems in the past six months than caretakers of boys in the youngest sample (4.8 percent for the youngest sample, versus 8.7 percent and 8.5 percent for the middle and oldest samples, respectively).

The prevalence rates for help seeking, found in this study, were somewhat higher than those reported in other studies (McGee et al., 1990; Offord et al., 1987; Zill & Schoenbrun, 1990). The reason may be that a wider range of help providers had been included than in previous studies? Help may be sought at different social and professional levels. Caretakers may talk to relatives about child problems, obtain advice from a school counselor, get therapy for the child, or commit the child to a hospital. Table 17.2 shows prevalence estimates for different levels of help seeking from non-professionals to mental health professionals (counselors, psychologists, and psychiatrists). Of the boys in the middle and the oldest samples, 21.4 percent and 22.1 percent had ever received help from a counselor,

Table 17.2 Prevalence of Help Seeking from Different Sources for Child's Problems

Source	Time frame	Samples					
		Youngest (N=503)		Middle (N=508)		Oldest (N=506)	
		percent	SE*	percent	SE	percent	SE
Friend/Relative/ Minister	life-time	4.9	(1.0)	7.4	(1.2)	8.4	(1.2)
	six-months	2.6	(.7)	3.9	(.9)	4.1	(.9)
School Personnel	life-time	12.3	(1.5)	12.6	(1.5)	13.0	(1.5)
	six-months	6.1	(1.1)	6.7	(1.1)	6.3	(1.1)
Family Doctor/ Pediatrician	life-time	3.1	(.8)	2.1	(.6)	2.1	(.6)
	six-months	.5	(.3)	.9	(.4)	.7	(.6)
Counselor/ Psychologist/ Psychiatrist	life-time	13.5	(1.5)	21.4	(1.8)	22.1	(1.8)
	six-months	4.9	(1.0)	8.2	(1.2)	7.2	(1.8)
Hospitalized	life-time	1.0	(.5)	1.7	(.6)	1.3	(.5)
	six-months	.4	(.4)	.7	(.4)	.8	(.4)
Other	life-time	1.5	(.5)	0.8	(.4)	2.4	(.7)
	six-months	.9	(.4)	.4	(.3)	1.4	(.5)

* SE = Standard Error in %.

psychologist or psychiatrist, compared with 13.5 percent of the boys in the youngest sample. The percent of boys who had received help from school personnel remained stable across the three samples at about 12 to 13 percent. Only 2 to 3 percent of the boys had received help from a family doctor or a pediatrician, which was less frequent than help seeking from friends, relatives or ministers.

The six-months prevalence of help from school personnel was similar for the three samples, at about 6 percent. Fewer caretakers of boys in the youngest sample had sought help within the past six months from a mental health professional (4.9 percent), compared to the boys in the middle and oldest samples (8.2 percent and 7.9 percent, respectively), suggesting caretakers' greater concern about the seriousness of the problems of the older boys.

The prevalence rate of help seeking from a mental health professional in the present study was relatively similar to rates reported in the literature. In the Dunedin study (McGee, 1990), the two-year rate for 15-year-old boys was 11.8 percent, while the Ontario Study (Offord et al., 1987) found a six-months rate of 7.8 percent for boys aged four to eighteen.

The frequency of caretakers' help seeking contacts varied greatly. Of those caretakers who had ever sought help, about one quarter had had only one or two contacts (30.8 percent, 23.0 percent, and 25.4 percent for the youngest, middle, and oldest samples, respectively). About 40 percent of those who had sought

help had had more than 10 contacts (39.1 percent, 44.2 percent and 41.1 percent for the youngest, middle, and oldest samples, respectively). Expressed differently, out of the whole sample, 10 to 15 percent of the caretakers had had more than 10 help contacts (10.6 percent, 15.4 percent, and 15.3 percent for the youngest, middle, and oldest samples, respectively). If we look only at those who had ever sought help from mental health professionals, 30.4 percent, 29.2 percent, and 19.8 percent (youngest, middle, and oldest samples, respectively) had only one or two contacts, while 32.5 percent, 34.5 percent and 46.4 percent, respectively, had had more than ten contacts. Calculated over the full samples, 4 percent to 10 percent had had more than 10 contacts with a mental health professional (4.4 percent, 7.4 percent, and 10.3 percent for the three respectively samples).

In summary, the prevalence rates of help seeking from any source were higher than those found in the literature. However, when help seeking was restricted to mental health professionals, the rates approached these found in other studies. About half to one third of the caretakers who sought help did not use mental health professionals, but relied on friends, relatives, ministers, school personnel, or a family doctor/ pediatrician. Although overall prevalence rates of help seeking are high, a proportion of these are of a very incidental nature, and may not have been likely to drastically change the course of a youngster's problem behavior.

HELP SEEKING AND DISRUPTIVE DISORDERS.

Caretakers help seeking is partly a function of the nature and prevalence of children's problem behavior. In order to assess the need for help in the sample we focussed on two measures of problem behavior; a diagnosis of one of the Disruptive Behavior Disorders, and different seriousness levels of life-time delinquency.

Table 17.3 shows the prevalence of DSM-III and DSM-III-R diagnoses for Disruptive Disorders for each of the three samples, based on a diagnostic interview with the caretaker. The reason for including DSM-III which has been superseded by DSM-III-R is that the prevalence of childhood disorders varied as a function of whether DSM-III or DSM-III-R criteria were used. In addition, most of the literature which the present data can be compared used the DSM-III classification.¹

Disruptive Behavior Disorders.

We will first concentrate on the presence of any Disruptive Behavior Disorder (first page of Table 17.4), before considering specific diagnoses. One fifth of the youngest sample (20.3 percent) and about one quarter of the middle and oldest samples (24.5 percent and 24.4 percent, respectively) received a diagnosis of any DSM-III Disruptive Disorder, while the comparable DSM-III-R diagnoses were somewhat less prevalent.

¹Although the psychiatric interview allowed for the diagnosis of depression and dysthymia, the prevalence, under either DSM system was less than one percent in all samples. For that reason, these diagnoses have been omitted from consideration in this paper.

Table 17.3 Prevalence of Disruptive Behavior Disorders

	Samples					
	Youngest (N=503)		Middle (N=508)		Oldest (N=506)	
	percent	SE*	percent	SE	percent	SE
DSM-III Disruptive Behavior Disorder	20.3	(1.8)	24.5	(1.9)	24.4	(1.9)
DSM-III-R Disruptive Behavior Disorder	16.3	(1.6)	14.8	(1.6)	14.9	(1.6)
DSM-III Attention Deficit Disorder	4.1	(.9)	7.6	(1.2)	8.3	(1.2)
DSM-III-R Attention Deficit/Hyperactivity Disorder	13.0	(1.5)	4.5	(.9)	2.1	(.6)
DSM-III Oppositional Disorder	14.3	(1.6)	20.4	(1.8)	16.6	(1.7)
DSM-III-R Oppositional Defiant Disorder	5.6	(1.0)	11.3	(1.4)	10.8	(1.4)
DSM-III Conduct Disorder	4.7	(.9)	2.6	(.7)	5.1	(1.0)
DSM-III-R Conduct Disorder	2.5	(.7)	2.1	(.6)	2.6	(.7)

* SE = Standard Error in %.

Whereas the DSM-III Attention Deficit Disorder yielded somewhat higher rates for the middle and oldest samples compared to the youngest sample (7.6 percent and 8.3 percent vs. 4.1 percent), the reverse was the case for the comparable DSM-III-R diagnosis. Thirteen percent of the youngest sample received a diagnosis of Attention Deficit/Hyperactivity Disorder (DSM-III-R), compared to 4.5 percent in the middle sample and 2.1 percent in the oldest sample. The prevalence for both DSM-III and DSM-III-R Oppositional (Defiant) Disorders was lowest for the youngest sample, compared to the middle and oldest samples. For example, the prevalence of DSM-III-R Oppositional Defiant Disorder doubled between the youngest and the middle samples (5.6 percent vs. 11.3 percent). Only a small percentage of the boys was diagnosed as having Conduct Disorder.

The overall prevalence rates found in this study for Disruptive Behavior Disorders were close to the 17.6 percent to 22 percent range which Costello (1990) suggested, with the DSM-III prevalence being somewhat above it and the DSM-III-R prevalence being somewhat lower. One should keep in mind, however, that in the present study only Disruptive Behavior Disorders were included and that anxiety disorders and depression were omitted.

Was the prevalence of help seeking in the diagnosed groups higher than that in the non-diagnosed groups and how much did caretakers seek help for boys who reached a diagnosis of Disruptive Behavior Disorder? Since many disruptive behavior

problems are generally of long standing, we present life-time as well as six months figures. Table 17.4 shows that about twice as many caretakers of boys with a Disruptive Behavior Disorder had ever sought help, compared with caretakers of boys who did not show the disorder. With any Disruptive Behavior Disorder (DSM-III or DSM-III-R) as the criterion, about 50 percent to 70 percent of the caretakers had ever sought help for boys, depending on the sample, with the DSM-III-R classification yielding somewhat higher percentages. Conversely, about 30 percent to 50 percent of the caretakers of boys with a diagnosis of Disruptive Behavior Disorder had never sought help for the boys' problems. Only 27.4 percent to 40.6 percent of the caretakers of boys with a Disruptive Behavior Disorder had sought help within the past six months. If help seeking is restricted to help seeking for behavior problems, the percentage of caretakers with problematic boys who never had sought help increased to about 50 percent to 70 percent. These percentages also are close to the percentage of caretakers who have never sought help for the boys' problem behavior from a mental health professional, such as a counselor, psychologist, or psychiatrist. In the six-months period preceding the assessment more help from mental health professional had been sought by caretakers of disruptive boys compared to non-disruptive boys; however, only 16.8 percent to 27.9 percent of the disruptive boys had been seen by a mental health professional during that interval.

In summary, for each of the three samples, the presence,

Table 17.4 Prevalence of Life-Time and Six-Months Help Seeking for Boys with or without a Disruptive Diagnosis

		Youngest Sample			Middle Sample			Oldest Sample		
Kind of Help Seeking		<u>Disorder</u>			<u>Disorder</u>			<u>Disorder</u>		
		No	Yes		No	Yes		No	Yes	
		%	%	X ²	%	%	X ²	%	%	X ²
<u>Disruptive Behavior Disorder (DSM-III)</u>										
For any problem	life-time	21.6	48.2	***	28.0	55.6	***	30.1	58.6	***
	six-months	8.6	27.4	***	11.8	30.0	***	11.0	30.6	***
For behavior problems	life-time	7.7	28.2	***	11.4	32.3	***	14.8	39.1	***
	six-months	2.2	14.9	***	4.7	20.7	***	4.7	20.3	***
For hyperactivity	life-time	2.3	9.0	**	3.1	6.6		1.6	3.7	
	six-months	.8	6.7	***	1.2	3.9		.0	1.1	
From counselor/ psychologist/psychiatrist	life-time	8.5	33.3	***	15.7	38.7	***	14.8	44.6	***
	six-months	1.9	16.8	***	4.9	18.6	***	4.0	17.2	***
<u>Disruptive Behavior Disorder (DSM-III-R)</u>										
For any problem	life-time	22.0	52.7	***	29.2	66.8	***	30.8	72.9	***
	six-months	8.7	31.7	***	12.0	40.6	***	12.0	37.7	***
For behavior problems	life-time	8.2	30.7	***	11.5	45.1	***	15.2	51.7	***
	six-months	2.7	15.6	***	4.8	30.6	***	5.1	28.1	***
For hyperactivity	life-time	2.3	10.7	***	3.2	8.2	*	1.5	5.2	
	six-months	.7	8.8	***	1.1	6.4	**	.0	1.7	
From counselor/ psychologist/psychiatrist	life-time	9.7	33.1	***	16.5	49.6	***	16.1	56.1	***
	six-months	2.4	18.0	***	4.8	27.9	***	4.8	21.0	***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 17.4 (continued)

		Youngest Sample			Middle Sample			Oldest Sample		
		<u>Disorder</u>			<u>Disorder</u>			<u>Disorder</u>		
<u>Kind of Help Seeking</u>		No	Yes		No	Yes		No	Yes	
		%	%	X ²	%	%	X ²	%	%	X ²
<u>Attention Deficit Disorder (DSM-III)</u>										
For any problem	life-time	25.5	63.4	***	31.3	77.1	***	34.4	66.7	***
	six-months	11.4	36.5	**	13.1	45.6	***	12.9	47.6	***
For behavior problems	life-time	10.7	38.4	***	14.4	42.4	***	19.1	37.8	**
	six-months	4.1	21.1	**	6.9	29.9	***	6.7	28.5	***
For hyperactivity	life-time	3.2	15.3	*	3.3	12.4	*	2.0	3.1	
	six-months	1.6	11.5	*	1.2	10.7	***	.1	1.5	
Sought help from counselor/ psychologist/psychiatrist	life-time	12.0	49.9	***	18.8	52.6	***	19.3	52.2	***
	six-months	4.1	25.0	***	6.6	28.1	***	5.3	28.5	***
<u>Attention Deficit/Hyperactivity Disorder (DSM-III-R)</u>										
For any problem	life-time	23.0	54.0	***	32.5	82.5	***	35.9	93.9	***
	six-months	9.5	31.9	***	14.4	55.7	***	14.7	69.3	***
For behavior problems	life-time	9.4	28.2	***	14.5	58.7	***	19.7	68.7	***
	six-months	3.4	14.1	***	7.0	43.8	***	7.7	44.2	***
For hyperactivity	life-time	2.6	11.0	**	3.3	17.9	**	1.7	18.4	**
	six-months	1.0	8.6	***	1.3	14.9	***	.0	12.3	***
From counselor/ psychologist/psychiatrist	life-time	10.3	35.6	***	19.7	56.2	***	20.9	74.8	***
	six-months	2.8	19.0	***	7.1	32.3	***	6.4	44.2	***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 17.4 (continued)

Kind of Help Seeking		Youngest Sample			Middle Sample			Oldest Sample		
		Disorder			Disorder			Disorder		
		No	Yes		No	Yes		No	Yes	
		%	%	X ²	%	%	X ²	%	%	X ²
<u>Oppositional Disorder (DSM-III)</u>										
For any problem	life-time	23.3	49.7	***	30.0	53.5	***	33.8	53.8	**
	six-months	9.8	28.5	***	13.1	29.1	***	14.3	23.6	*
For behavior problems	life-time	8.9	30.2	***	12.6	32.4	***	17.6	36.2	***
	six-months	2.6	17.9	***	5.4	21.8	***	6.5	18.0	***
For hyperactivity	life-time	2.5	10.6	*	3.3	6.6		1.9	3.2	
	six-months	1.1	7.3	*	1.5	3.3		.2	.8	
From counselor/ psychologist/psychiatrist	life-time	10.5	32.4	***	17.9	35.7	***	17.8	43.6	***
	six-months	2.5	19.5	***	6.4	15.9	**	6.1	12.6	
<u>Oppositional Defiant Disorder (DSM-III-R)</u>										
For any problem	life-time	25.5	52.9	**	31.1	63.6	***	33.5	66.3	***
	six-months	11.2	34.3	***	13.2	40.0	***	14.7	25.2	
For behavior problems	life-time	10.5	35.7	***	13.2	42.4	***	17.8	44.4	***
	six-months	4.1	15.7	*	5.7	31.8	***	7.2	19.1	**
For hyperactivity	life-time	3.0	14.3	*	3.9	4.8		1.9	3.7	
	six-months	1.4	11.4	**	1.8	2.4		.3	.0	
From counselor/ psychologist/psychiatrist	life-time	12.7	28.5	*	18.2	45.9	***	18.3	53.0	***
	six-months	4.4	14.3		5.7	28.2	***	6.4	14.3	***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 17.4 (continued)

Kind of Help Seeking		Youngest Sample			Middle Sample			Oldest Sample		
		<u>Disorder</u>		χ^2	<u>Disorder</u>		χ^2	<u>Disorder</u>		χ^2
		No	Yes		No	Yes		No	Yes	
		%	%		%	%		%	%	
<u>Conduct Disorder (DSM-III)</u>										
For any problem	life-time	26.3	42.3		34.1	63.0		35.5	66.7	**
	six-months	12.0	22.0		15.7	37.0		14.3	43.9	***
For behavior problems	life-time	11.1	27.1	*	15.7	47.5	**	18.5	61.7	***
	six-months	4.7	6.8		8.2	26.4		7.3	31.1	***
For hyperactivity	life-time	3.7	3.4		3.8	10.6		1.9	5.0	
	six-months	1.9	3.4		1.6	10.6		.1	2.5	
From counselor/ psychologist/psychiatrist	life-time	12.5	33.8	**	20.7	47.5	*	20.4	53.6	***
	six-months	4.8	6.8		7.6	31.7	**	5.7	36.1	***
<u>Conduct Disorder (DSM-III-R)</u>										
For any problem	life-time	26.8	38.7		34.2	62.6		35.8	85.2	***
	six-months	12.1	25.8		15.8	37.8		14.5	65.0	***
For behavior problems	life-time	11.5	25.8		15.8	50.0	**	19.2	75.4	***
	six-months	4.6	12.9		8.3	25.2		7.2	55.2	***
For hyperactivity	life-time	3.8	.0		3.7	18.9	*	1.9	9.9	
	six-months	2.0	.0		1.5	18.9	**	.1	4.9	
From counselor/ psychologist/psychiatrist	life-time	13.1	32.2		20.5	62.6	**	21.0	60.1	**
	six-months	4.7	12.9		7.7	31.5	*	6.5	35.0	***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

compared to the absence, of a Disruptive Behavior Disorder significantly increased help seeking in general, help seeking for behavior problems and help seeking from a mental health professional. However, a very substantial proportion of diagnosed boys did not receive professional help.

Attention Deficit Disorder and Attention Deficit/Hyperactivity Disorder.

Turning to the help seeking for specific diagnoses, Table 17.4 shows that caretakers had sought help for a relatively high percentage of the boys who received an Attention Deficit diagnosis under either DSM system. This is particularly the case for the middle and oldest samples, where caretakers of 80 percent to 90 percent of the DSM-III-R Attention Deficit/Hyperactivity boys had ever sought help. This may reflect the early onset of the problem behaviors (and, hence, the long-standing nature of the problem), as well as the intrusiveness of attention deficit/hyperactive behaviors. Caretakers of diagnosed boys had sought more help for hyperactive behaviors than nondiagnosed boys, but only 10 percent to 20 percent of the caretakers of DSM-III-R diagnosed boys had ever sought help specifically for hyperactivity (11.0 percent, 17.9 percent, and 18.4 percent for the youngest, middle, and oldest samples, respectively). Help sought for behavior problems for these boys was about two to three times more likely than help sought for hyperactivity, ranging from 28.2 percent for the youngest sample to 58.7 percent and 68.7 percent for the middle and oldest samples, respectively.

About 20 percent to 40 percent of the attention deficit boys had received help from a mental health professional in the past six months. Thus, relatively few caretakers were receiving professional help for the current problems.

Oppositional Disorder and Oppositional Defiant Disorder.

Compared to help seeking for Attention Deficit Disorder, caretakers of boys diagnosed as having an Oppositional Disorder had somewhat lower life-time and six-months help seeking rates, ranging, for DSM-III-R from 52.9 percent for the youngest sample to 63.6 percent and 66.3 percent for the middle and oldest samples, respectively. About two thirds of the help seeking was for behavior problems. Notice that in the youngest sample caretakers of diagnosed boys had sought significantly more help for hyperactivity than caretakers of nondiagnosed boys. Only a minority of the oppositional boys had received help from a mental health professional for the current problems in the past six months (14.3 percent, 28.2 percent, and 14.3 percent of the DSM-III-R diagnosed boys in the youngest, middle, and oldest samples, respectively).

Conduct Disorder.

Of the three Disruptive Behavior Disorders (attention deficit, oppositional, and conduct), Conduct Disorder has the latest onset. In addition, problems accumulate over time in terms of variety and seriousness. It is, therefore, not surprising that for the youngest sample help seeking for the diagnosed group versus the undiagnosed group only approached

significance, and that the relationship between diagnosis and help seeking was the strongest for the oldest sample, where 85.2 percent of the caretakers of the diagnosed boys (DSM-III-R) had ever sought help and 65 percent had sought help in the past six months. About 60 percent of the caretakers of diagnosed boys (DSM-III-R) in the middle and the oldest samples had ever sought help from a mental health professional, and for about one third of these boys the professional help had been in the past six months.

Summarizing, the presence of a Disruptive Behavior Disorder significantly increased the prevalence of help seeking. However, about 30 percent to 50 percent of the caretakers of diagnosed boys had never sought help, and an even larger percentage had never sought help from a mental health professional. The six-months rate of help seeking from mental health professionals was close to the 18.1 percent, found by Offord et al. (1987) (16.8 percent, 18.6 percent, and 17.2 percent for DSM-III Disruptive Behavior Disorders, and 18.0 percent, 27.9 percent, and 21 percent for DSM-III-R Disruptive Behavior Disorders, for the youngest, middle, and oldest samples, respectively). This suggests that a large number of caretakers struggle unaided with serious child behavior problems.

HELP SEEKING AND DELINQUENCY.

Table 17.5 shows the percent of the boys with different life-time levels of seriousness of delinquency at assessment A. In the youngest sample, 44.3 percent of the boys had not

Table 17.5 Prevalence of Different Levels of Delinquency Seriousness

Delinquency Level	Samples		
	Youngest (N=503)	Middle (N=508)	Oldest (N=506)
	percent	percent	percent
No Delinquency or Minor Delinquency at Home	44.3	25.9	24.0
Other Minor Delinquency	30.4	32.5	22.4
Moderately Serious Delinquency	16.4	19.7	24.9
Serious Delinquency	8.8	21.9	28.7
(Standard Error)	(5.7)	(6.3)	(6.6)

committed any delinquent act or had only committed minor delinquent acts at home. This figure compares with 25.9 percent and 24.0 percent for the middle and oldest samples, respectively, showing an increase in youngsters' delinquency participation during the early elementary school years.

The higher the level of delinquency seriousness for the youngest sample, the lower the prevalence. 30.4 percent of boys in that sample had reached the level of minor delinquency, compared to 16.4 percent at the moderately serious level and 8.8 percent of the youngsters had already engaged in serious delinquency. The prevalence of boys engaging in serious delinquency increased with age, with 21.9 percent of the boys in the middle sample and 28.6 percent of the boys in the oldest sample engaging in the most serious forms of delinquency.

Before we will go on to examine the relationship between help seeking and delinquency, we will briefly consider to what extent boys diagnosed with a Disruptive Behavior Disorder on the basis of caretaker information, are the same as the group of delinquent boys formed on the basis of information from the boys themselves, caretakers, and teachers. Of these boys who had a DSM-III Disruptive Behavior Disorder, 77.6 percent, 88.8 percent, and 86.7 percent were also classified as delinquent (youngest, middle, and oldest samples, respectively). The corresponding figures for the DSM-III-R Disruptive Behavior Disorder boys are 77.5 percent, 84.9 percent, and 91.0 percent. Conversely, boys classified as delinquent were significantly more likely to have a

Disruptive Behavior Disorder, however, only about 20 percent to 30 percent of the boys classified as delinquent had a Disruptive Behavior Disorder. Even for the seriously delinquent group, these figures were only slightly higher, showing that the psychiatric and the delinquency classifications used only partially overlapped.

Returning to delinquency and help seeking, a first question concerns the proportion of caretakers of delinquent boys have sought help compared to caretakers of boys who are not delinquent, except for minor delinquency at home (comparison between column 1 and 5 in Table 17.6). In the middle and the oldest samples caretakers had sought more help for delinquent than non-delinquent boys. For all samples, more help was sought from mental health professionals and for behavior problems for the delinquent boys compared to the non-delinquent boys. With one exception, caretakers equally often sought help for hyperactivity for delinquent and for non-delinquent boys. About 60 percent to 70 percent of the caretakers of delinquent boys had never sought help, and even fewer had sought help from mental health professionals.

To what extent was the caretakers' help seeking related to the seriousness level of boys' delinquency? This can be seen in Table 17.6, by comparing columns 1, 2, 3, and 4. In general, the percentage of caretakers having sought any help, help from mental health professionals, or help for behavior problems increased with increasing seriousness levels of delinquency. This increase

Table 17.6 Prevalence of Life-Time Help Seeking by Life-Time Delinquency Seriousness Level

Kind of Help Seeking		Delinquency Seriousness Levels					
		1	2	3	4	5	
		Non/Minor Delinquents at Home	Other Minor Delinquents	Moderately Serious Delinquents	Serious Delinquents	All Delinquents (columns 2,3,4)	
		percent	percent	percent	percent	X ²	
For any problem	Y	24.6	25.4	34.5	31.5		29.0
	M	24.0	34.0	42.9	41.6	**	38.6
	O	28.1	28.4	42.2	47.2	**	39.9
For behavior problems	Y	8.3	12.5	16.0	19.8		14.7
	M	10.1	13.5	20.4	25.1	**	18.8
	O	7.9	15.9	23.6	32.6	***	24.7
For hyperactivity	Y	2.2	6.8	2.9	1.8		4.9
	M	2.0	2.9	10.1	2.5	**	4.7
	O	.0	1.8	2.1	4.1		2.7
From counselor/ psychologist/psychiatrist	Y	8.7	16.7	15.0	24.3	*	17.4
	M	10.6	23.1	26.5	26.9	**	25.1
	O	13.5	19.4	26.8	27.2	*	24.8

Note. Y = youngest sample; M = middle sample; O = oldest sample; * $p < .05$; ** $p < .01$; *** $p < .001$. First p values are for chi-squares comparing non-delinquents and different level delinquents (columns 1, 2, 3, and 4); second p values are for chi squares comparing non-delinquents and delinquents (columns 1 and 5).

was frequently in an orderly, step-wise fashion. However, sometimes the differences in help seeking were minimal between the non-delinquent group and the minor delinquency group (as in the case of the oldest sample for help seeking in general) or between the moderately serious delinquent group and the serious delinquent group (as in the case of the middle sample for help seeking in general). Caretakers had sought help for less than half of the boys who had committed serious delinquent acts and sought help for only one quarter of the seriously delinquent boys from a mental health professional.

If both the time frame for help seeking and for the delinquency seriousness status are restricted to only the past six months, is there still a relationship between delinquency seriousness and help seeking? Table 17.7 shows that this is, indeed, the case. For all three samples, caretakers of boys who had not committed a delinquent act or only minor delinquency at home, had sought less help than caretakers of boys who were classified in the other categories.

A comparison of the figures in Tables 17.6 and 17.7 and help seeking for boys with a diagnosis of Disruptive Behavior Disorder, it is clear that a diagnosis of Disruptive Behavior Disorder is more likely to be associated with help seeking than being classified as delinquent. In most cases the relevant comparisons yielded prevalence rates which were about one and one half to two times as high for boys diagnosed as having a Disruptive Behavior Disorder, than for boys classified as either

Table 17.7 Prevalence of Help Seeking (Six Months) at Wave A by Delinquency Seriousness Status (Six Months) at Wave A

	Delinquency Status at Wave A				X ²
	No/Minor At Home	Other Minor	Moderately Serious	Serious	
<u>Samples</u>	percent	percent	percent	percent	
Youngest	9.8	20.7	16.3	15.6	*
Middle	13.4	15.6	21.4	27.2	*
Oldest	11.8	17.3	23.2	17.4	*

Note * $p < .05$

delinquent or as seriously delinquent.

Help Seeking and Changes in Boys' Delinquent Behavior Over Time.

The question remains: how is help seeking related to later levels of delinquency? Does the help that was sought prevent later delinquency or at least reduce the seriousness of the offenses, or is help seeking more a sign of the seriousness of the problem rather than an effective intervention? Table 17.8 shows that when the samples were divided into four groups, formed by a dichotomized delinquency status (No delinquency, or minor delinquency at home vs. other minor delinquency, moderately serious delinquency and serious delinquency) at the beginning of the study and help seeking in the interval between the first and the second assessment, the percentage of boys who were delinquent at the second assessment differed significantly among the groups. However, most of the difference among the groups was caused by the delinquency status at the onset of the study rather than by the fact that help was sought or not. Post-hoc comparisons between the two groups of initial non-delinquents (groups 1 and 2) showed no significant differences, whereas the comparisons between the two groups of initially delinquent (groups 3 and 4) boys showed significant differences for the youngest and the oldest samples at the $p < .05$ level. Thus, a larger proportion of initially delinquent boys whose caretakers had sought help continued to be delinquent compared to the initially delinquent boys for whom no help had been sought.

One might assume that help seeking may not have such an

Table 17.8 Percent Delinquent Boys (Six Months) at Wave A by Delinquency Status at Wave S and Help Seeking Between Waves S and A

Delinquency Status at Wave S and Help between Waves S and A					
	1 NonDelinquent No Help	2 NonDelinquent Help	3 Delinquent No Help	4 Delinquent Help	
<u>Samples</u>	percent	percent	percent	percent	X ²
Youngest	19.9	24.0	51.7	72.5	***
Middle	19.8	31.1	61.0	68.9	***
Oldest	28.4	37.7	66.7	83.5	***

Note *** p < .001

immediate effect as to reduce delinquency in the same six months period in which the help seeking took place. Therefore, we examined the relationship of help seeking in the year after the help seeking had taken place (Table 17.9). The results are much the same as those in Table 17.8 in that all three overall chi-squares are significant. Again, none of the post-hoc comparisons between groups 1 and 2 reached significance, and only in the oldest sample were groups 3 and 4 significantly different. Thus, help seeking for non-delinquent boys did not significantly raise or lower the probability of becoming delinquent. For delinquent boys, help seeking, rather than reducing delinquency, was, at times, associated with an increased probability of their continuing to be delinquent.

One could argue that the distinction delinquent/non-delinquent, as used in Tables 17.8 and 17.9 is too coarse and that the dynamic delinquency classification offers a better possibility to examine the relationship of help seeking and subsequent delinquency. As mentioned in the Methods section, subjects were classified into non-delinquents, starters, stable moderates, escalators, stable highs, de-escalators, and desistors, called the dynamic classification of offenders. The term dynamic was used to indicate that the classification was based on the temporal changes in delinquency pattern from the life-time classification in the first year to the delinquency classification based on the subsequent two years.

The question is whether help seeking by caretakers was

Table 17.9 Percent Delinquent Boys (One Year) at Waves B and C by Delinquency Status at Wave S and Help Seeking Between Waves S and A

Delinquency Status at Wave S and Help between Waves S and A					
	1 NonDelinquent No Help	2 NonDelinquent Help	3 Delinquent No Help	4 Delinquent Help	
<u>Samples</u>	percent	percent	percent	percent	X ²
Youngest	28.8	38.4	64.1	71.2	***
Middle	35.0	50.1	65.6	76.8	***
Oldest	34.9	38.2	74.6	92.2	***

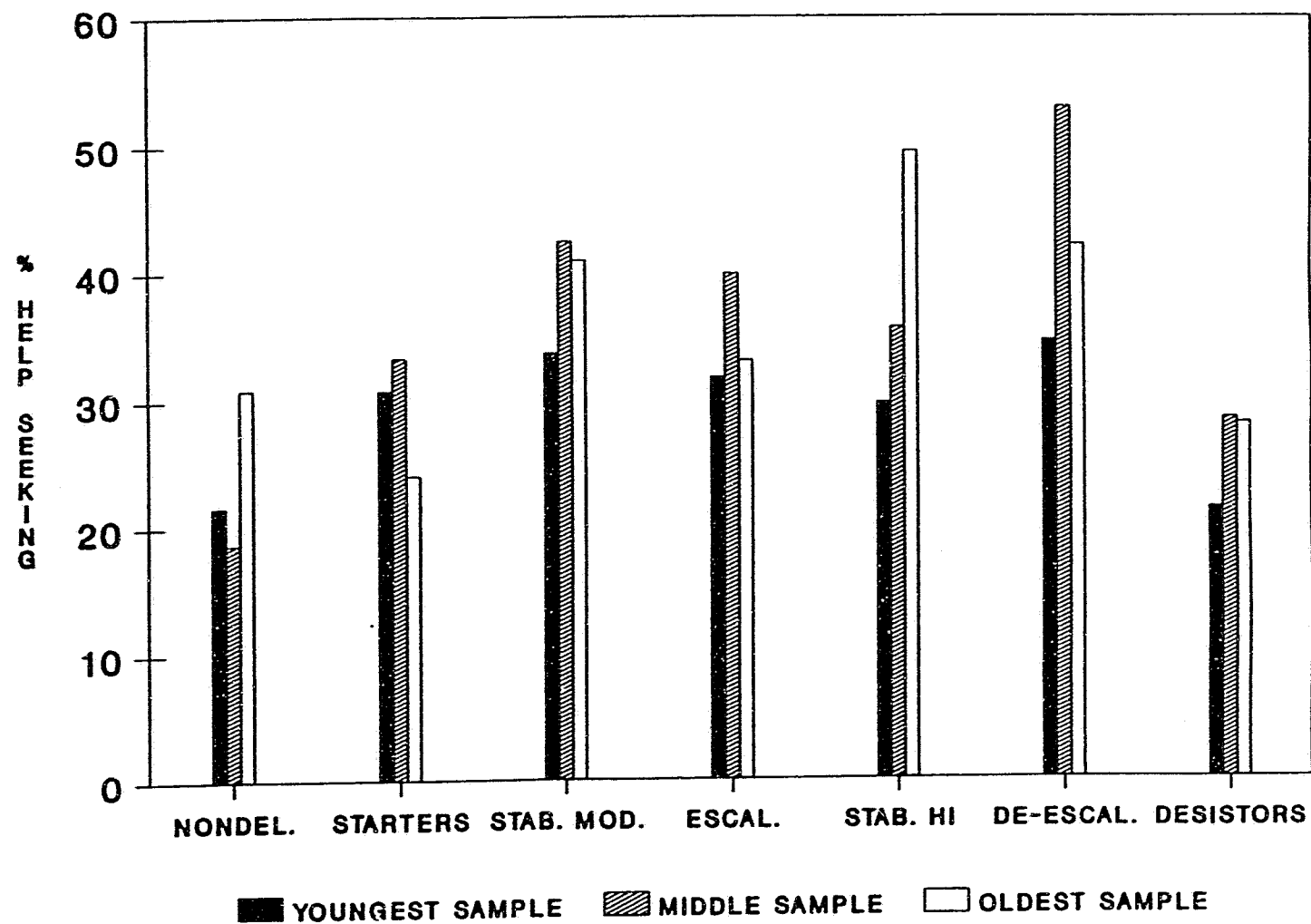
Note *** p < .001

related to the changes in offense seriousness level that could be observed over a one year period. We expected that, if help seeking was just a symptom of the seriousness of the boys' behavior caretakers' help seeking would be highest among the Stable High offenders and intermediate for the Stable Moderates and Escalators. If help seeking were effective, we expected to find that the percent help seeking would be high in the case of the De-Escalators and Desistors, and, possibly, the Stable Moderates. Figure 17.1 shows the prevalence of life-time help seeking for the different dynamic groups. For the youngest sample, the Non-Delinquents and the Desistors had the lowest prevalence of help seeking (21.6 percent and 21.4 percent, respectively). The highest prevalence was for the De-escalators (34.6 percent), followed by the Stable Moderates (33.7 percent), however, the differences among these two groups and the remaining groups (Escalators, Starters, and Stable Highs) are not large. For the middle sample, again, the Non-Delinquents and the Desistors had the lowest prevalence for help seeking (18.6 percent and 28.5 percent, respectively). In contrast, the groups with the highest prevalence rates were the De-escalators (52.9 percent) and the Stable Moderates (42.4 percent), followed by the Escalators (39.8 percent). For the oldest sample, the pattern was somewhat different. The Starters had the lowest life-time help seeking rate (24.0 percent), followed by the Desistors (28.1 percent). The Stable High group had the highest prevalence of help seeking, with 49.5 percent of the caretakers having sought

FIGURE 17.1

PREVALENCE OF LIFE-TIME HELP SEEKING BY
DYNAMIC DELINQUENCY CLASSIFICATION•

17-40



• LIFE-TIME AT YEAR 1 VS. NEXT 2 YEARS

help. This is followed by a prevalence of 42.1 percent for the De-escalators and 40.9 percent for the Stable Moderates.

Most of the findings were replicated when only help seeking in the last six months of the first year was taken into account (Figure 17.2). Overall, the Non-Delinquents (except for the oldest sample) and the Desistors had low help seeking rates of less than 10 percent. For almost all samples in all groups the rate of help seeking did not exceed 20 percent. The exceptions were the De-escalators (29.2 percent) in the middle sample, and the Stable Moderates in the middle and oldest samples (21.2 percent and 21.3 percent, respectively).

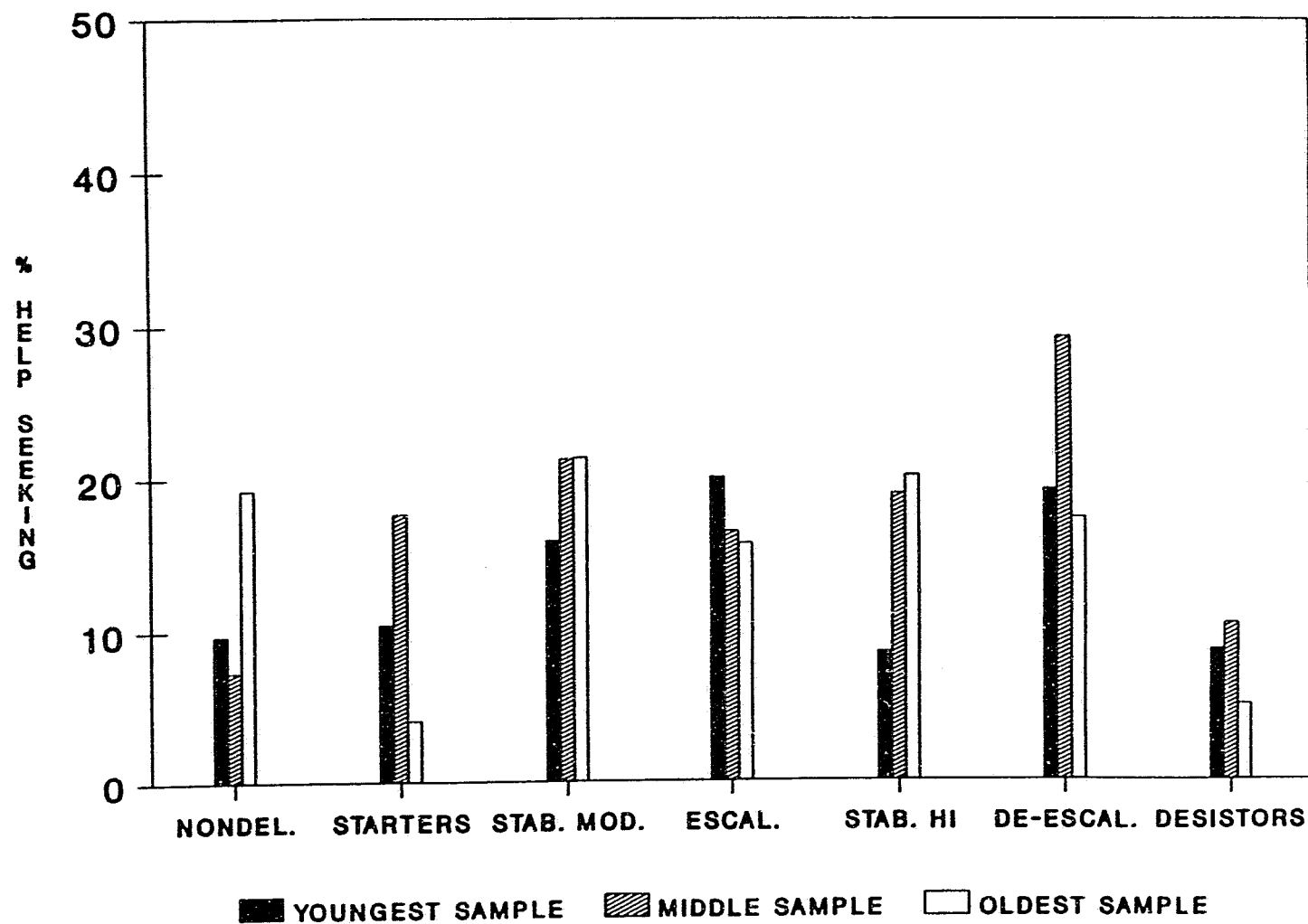
Summarizing, the least amount of help was sought for those subjects who were classified as Non-Delinquents or those subjects who moved out of or into the non-delinquent status (i.e., the Starters or the Desistors). If boys changed their original position in the delinquency seriousness classification, they usually moved to an adjacent seriousness level. Therefore, it is to be expected that most subjects in the Starter and Desistor groups were not seriously delinquent.

For those subjects who were delinquent at both times of the classification (Stable Moderates, Escalators, Stable Highs, and De-escalators), the De-escalators and Stable Moderates had somewhat higher help seeking rates than the Escalators and the Stable Highs (except for the oldest sample), suggesting a possible moderating effect of help seeking on the more seriously delinquent boys.

FIGURE 17.2

PREVALENCE OF SIX-MONTHS HELP SEEKING BY
DYNAMIC DELINQUENCY CLASSIFICATION*

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* LIFE-TIME AT YEAR 1 VS. NEXT 2 YEARS

DISCUSSION

The results of this study agree with findings of previous studies, showing a relatively high prevalence of help seeking of caretakers for mental health problems of boys in their care (McGee et al, 1990; Offord et al., 1987; Zill & Schoenbrun, 1990). However, a substantial number of caretakers did not seek help for any problem, let alone behavior problems. Help seeking was more common for older boys or boys with more severe problems. Over one third of the caretakers of the middle and oldest samples had sought help from any source and one fifth had sought help from a mental health professional. Caretakers may not have appreciated the extent of the boys' delinquency; however the diagnoses were based on caretakers' reports.

Caretakers mentioned behavior problems (aggression and oppositional behaviors) as the most frequent reason for seeking help. It should be understood, however, that the caretakers' descriptions of the problem may lack the precision that may be found in a clinical report. Nevertheless, their perception of what caused them to seek help is an indicator of the concerns they had about the boys' problem behavior.

Among all professionals the primary care physician (family doctor or pediatrician) was the least consulted. Although their training and their placement in the medical hierarchy should make primary care physicians excellently suited for the role of "first resort", in practice this is not the case. Costello et al. (1987) also reported that pediatricians in a health maintenance

organization severely underestimated the prevalence of psychiatric disorder among their patients. Aside from the low sensitivity of primary care physicians to mental health problems, another, and much more far reaching, problem is the fact that many children in this country grow up without adequate medical coverage that would allow regular contact with a primary care physician rather than just sporadic emergency care (Children's Defense Fund, 1984). School personnel appear to be involved more frequently in child mental health problems. This role is facilitated by contact with children over time as well as in a setting that can form the basis of comparisons with normative behavior. Recent efforts have been made to facilitate collaboration between mental health care and education in dealing with problem behaviors in the classroom. This does not approach the level of other public health initiatives such as vision and hearing screening. Often the consultation with school personnel is more suited to serve as a referral source than as a treatment agency.

About a quarter of those caretakers who had sought help had only one or two contacts. These figures also hold if we look at those who sought help from mental health professionals. It may be that the problems were minor and disappeared, or that the help offered did not suit the caretaker, or was not affordable. There is a large literature on drop-out in therapy (Kolko, Parrish, & Wilson, 1985), suggesting that drop-out is not always related to the severity of the problem, and many extraneous factors may play

a role, such as lack of transportation, or absence of child care for other children in the family during therapy sessions.

The prevalence of Disruptive Behavior Disorders in the present study was within the range found in other studies. Presence of such a disorder significantly increased the probability of help seeking. Since the diagnosis was based on the caretakers' reports, caretakers were aware of the problems. Nevertheless, about 50 percent to 30 percent of the caretakers had never sought any help (depending on the DSM classification used and the sample).

Caretakers may not always have been aware of the seriousness of their boys' delinquency, and, therefore, may not have seen a need to seek help. As was to be expected then, the rate of help seeking for even the most seriously delinquent boys was less than that for caretaker-reported Disruptive Behavior Disorder. Seventy to 50 percent of the caretakers of the most seriously delinquent boys had never sought help, and only about a quarter had ever sought help from a mental health professional.

In our study we did not find strong evidence that help seeking is related to a reduction in delinquency, although there is some suggestion that help seeking may moderate the seriousness of delinquency of those boys who are already delinquent. Considering that a sizeable proportion of help seeking is of an incidental nature, these results are not surprising.

This research points to several gaps in our knowledge which will be addressed in future assessment waves of the Pittsburgh

Youth Study. First, how is help seeking related to medical coverage? Second, do caretakers who have not sought help feel a need for help? Third, what are the reasons why help seeking is terminated? Fourth, what is the satisfaction of the help seekers with the help offered?

The consensus of the field is that disruptive behaviors, including delinquency, are difficult to treat, particularly later in the sequence of antisocial development (Kazdin, 1985). It is, therefore, of the greatest importance to learn how to optimize effective help seeking early on in children's antisocial development.

POLICY RECOMMENDATIONS

Delinquency can be viewed as a mental health concern; it is rare that delinquent children do not show, at some time during their lives, other problem behaviors, such as oppositional behaviors, hyperactivity, attention problems, or depression. Viewed as such, our findings lend further support to the views expressed in the U.S. Congress background paper on children's mental health (1986), and the U.S. Department of Health and Human Services National Plan for Research on Child and Adolescent Mental Disorders (1990) which pointed out the huge need for services and the inadequacy of services provided. Service inadequacy is evident from the low proportion of people reached who are in need of help and the poor effects of treatment on the problem behavior.

Enormous efforts have been targeted by a variety of social

services in helping children with disruptive behavior problems. Remarkably, a large number of children needing this help are not receiving services. When contact is made, it does not always lead to ongoing service. Public health care initiatives have focused on better coordination of social services. While this might address the difficulty in maintaining contacts, it does not deal with the problem of access to services. More study is needed to clarify the obstacles to help and design more effective delivery systems. Programs that move routine medical care out of the emergency rooms into community clinics may provide better access to mental health services. This might require additional steps to increase primary care providers awareness of, and screening for mental health problems. Mental health programs physically located in schools may serve to support the screening and care delivery that already exists. Community based services that involve local ministers and family networks may identify additional children as well as children at earlier stages of problem behavior.

An important barrier to help seeking is the fact that many children in this country grow up with only sporadic emergency medical or psychosocial care, that is, without a primary care physician or mental health specialist, who is available to the caretaker as a resource for deciding whether a problem is serious and warrants special help. At present there is generally no clearly identifiable "first resort" person or agency, able to catch problems at an early stage. Developing such a first resort

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as part of the ordinary health care that should be available for all children is one of the unfinished tasks that confront our government.

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CHAPTER 17, PART 2

PARENTAL HELP SEEKING FOR YOUTH WITH BEHAVIORAL,
MENTAL HEALTH, OR DRUG USE PROBLEMS
IN THE DENVER YOUTH SURVEY

David Huizinga and Howard Bashinski
Denver Youth Survey

In this section, data from the first two years of the Denver Youth Survey are used to illustrate the prevalence of help-seeking by parents of the child and adolescent subjects. This information includes the reasons for seeking help, the source of help, and a brief examination on the influence of the help obtained on subsequent behavior. Data about frequency of help-seeking, source of help, and satisfaction with help obtained is obtained annually. For brevity, only the first two years of data are examined.

Table 17.10 contains the reasons given by parents for seeking help for their adolescents (ages 11-15) during the first year of the study. Table 17.11 provides a similar table for children (ages 7 and 9). In these tables, data is provided for the total samples and by the delinquency classification of Street Offenders, Other Serious Offenders, Minor Offenders, and Non-Offenders.

As seen in Table 17.10, slightly under one-third (28-32 percent) of the parents of adolescents classified as Street,

Table 17.10 Reason for Seeking Help by Delinquency Type

Adolescent Sample					
	<u>Street Offender</u>	<u>Other Serious Offender</u>	<u>Minor Offender</u>	<u>Non Offender</u>	<u>Total</u>
N	123	214	176	313	825
Percent who Sought Help	32.0	30.8	28.1	16.1	24.9***
Alcohol Drug Problem	12.0	4.5	6.5	4.4	6.4
Family Problem	18.9	17.8	21.4	15.7	18.3
School Problems	67.5	62.0	58.3	54.4	60.2
Behavior Problems	51.1	44.8	52.0	41.7	46.9
JJS Problems	12.7	1.4	0.0	3.4	3.7**
Emotional Problems	12.0	20.0	13.0	16.9	16.0
Sex Abuse	0.0	1.8	4.2	2.2	2.1

Multiple problems could be identified, thus totals do not add to 100%.

** $p > .01$; *** $p > .001$.

Table 17.11 Reason for Seeking Help by Delinquency Type

Child Sample					
	<u>Street Offender</u>	<u>Other Serious Offender</u>	<u>Minor Offender</u>	<u>Non Offender</u>	<u>Total</u>
N	71	106	48	364	588
Percent who Sought Help	22.1	18.8	19.2	19.9	19.9
Alcohol Drug Problem	0.0	0.0	0.0	1.2	0.8
Family Problem	22.4	11.1	22.5	12.1	14.1
School Problems	56.3	49.4	64.7	60.8	58.5
Behavior Problems	71.9	69.1	19.7	44.3	50.4**
JJS Problems	0.0	0.0	0.0	0.0	0.0
Emotional Problems	13.2	11.1	12.7	10.9	11.4
Sex Abuse	0.0	0.0	0.0	3.2	2.0
Multiple problems could be identified, thus totals do not add to 100%.					

** $p > .01$.

Other Serious, and Minor Offenders have sought help for their child, compared to only 16 percent for non-delinquent youth. This difference is statistically significant, so there appears to be a greater tendency on the part of parents of delinquent youth to seek help.

The problems for which parents sought help are not just delinquent behavior, however. The most frequent reason for seeking help is with school problems, followed in turn by behavioral problems, and then family relationships and emotional problems. There are few differences in the types of problems for which help was sought across delinquent types. However, and not surprisingly, a greater proportion of parents of Street Offenders than any other type have sought help for their youth's problems with the juvenile justice system.

Examination of the reasons parents sought help for members of the child sample provide a similar picture. Help for school and behavior problems are the most prevalent, followed by family and emotional problems. Interestingly, roughly 70 percent of the parents of Street and Other Serious Offenders that have sought help, have been concerned about behavior problems, suggesting a relationship between delinquency level and other behavior problems at these younger ages. In general, roughly 20 percent of the parents of the children have sought help, and this percentage does not vary across delinquency.

Overall, the most frequently given reasons for seeking help for either children or adolescents are for school and behavioral

problems. A greater proportion of parents of delinquent adolescents have sought help than have parents of non-delinquents. However, only a small proportion of parents (roughly 30 percent for adolescents and 20 percent for children) of delinquent children report seeking help for their children.

The place or service provider where parents went to seek help is given in Tables 17.12 for the youth sample and 17.13 for the child sample. Although there are some differences in rates across delinquent types, in general for both youth and child samples, the most common places parents sought help were schools, followed, in turn, by professionals (MD's, psychiatrists, counselors) in mental health clinics or in private practice, and then by friends and relatives. In analyses not shown, parents of adolescents and children with behavioral problems or in trouble with the law and not school problems, still listed the school as the most frequent place help for their children was sought. There is thus a suggestion that schools may be seen as a central service provider for many problems outside usual school issues.

In a final analysis, an examination was made of whether the youth and children of parents that sought help changed their level of delinquent behavior in the following years in comparison to youth and children for whom no help was sought. These analyses are given in Tables 17.14 for youth and 17.15 for children. These tables contain the percentage of different delinquency types for whom help was or was not sought in Year 1 by their delinquency status at Year 2. As illustrated in these

Table 17.12 Source of Help by Delinquency Type

Adolescent Sample					
	<u>Offender</u>	<u>Street Offender</u>	<u>Other Serious Offender</u>	<u>Minor Offender</u>	<u>Non Total</u>
N	123	214	176	313	825
Percent who Sought Help	32.0	30.8	28.1	16.1	24.9***
Friends/Relatives	10.1	10.1	9.6	3.9	7.6*
Church Personnel	5.3	2.8	3.0	1.9	2.9
School Personnel	22.8	21.6	20.9	12.1	18.0**
Professional-Private	3.3	3.7	3.9	2.2	3.1
Professional-MHC	8.3	5.9	3.9	3.5	4.9
Hospital	1.6	2.0	0.5	1.0	1.2
Drug Clinic	0.0	0.0	0.0	0.4	0.1
Alcohol Clinic	0.0	0.0	0.0	0.0	0.0
Self-Help Group	0.7	0.0	0.0	0.9	0.4
Community Program	0.9	2.5	0.0	0.4	0.9
Other	2.4	1.7	1.8	0.0	1.2

* $p > .05$; ** $p > .01$; *** $p > .001$.

Table 17.13 Source of Help by Delinquency Type

Child Sample					
	<u>Street Offender</u>	<u>Other Serious Offender</u>	<u>Minor Offender</u>	<u>Non Offender</u>	<u>Total</u>
N	71	106	48	364	588
Percent who Sought Help	22.1	18.8	19.2	19.8	19.9
Friends/Relatives	13.0	4.1	3.8	5.0	5.7*
Church Personnel	0.0	2.2	1.9	0.6	0.9
School Personnel	16.3	12.8	13.0	14.2	14.1
Professional-Private	4.4	3.0	3.8	3.0	3.2
Professional-MHC	4.1	4.9	4.3	3.6	4.0
Hospital	0.0	1.9	0.0	0.5	0.6
Drug Clinic	0.0	0.0	0.0	0.0	0.0
Alcohol Clinic	0.0	0.0	0.0	0.0	0.0
Self-Help Group	1.6	0.0	0.0	0.0	0.2
Community Program	0.0	1.1	0.0	0.2	0.3
Other	0.0	0.0	1.9	0.2	0.3

Table 17.14 Change in Delinquency Status from
Time 1 to Time 2 by Helpseeking Time 1

Adolescent Sample					
Time 2					
	N	Street Offender	Other Serious Offender	Minor Offender	Non Offender
<u>Time 1</u>					
Street Offender					
Help Seeking	37	58.5	18.7	14.8	8.1
No Help	77	40.0	31.4	19.7	8.9
Other Serious Offender					
Help Seeking	60	17.3	34.8	28.1	19.9
No Help	133	18.4	33.0	28.3	20.3
Minor Offender					
Help Seeking	42	9.8	24.0	42.2	24.0
No Help	115	8.8	18.9	47.3	24.9
Non Offender					
Help Seeking	49	15.6	13.3	18.0	58.5
No Help	234	6.1	11.4	16.7	65.7

Table 17.15 Change in Delinquency Status from
Time 1 to Time 2 by Helpseeking Time 1

Child Sample					
Time 2					
	N	Street Offender	Other Serious Offender	Minor Offender	Non Offender
<u>Time 1</u>					
Street Offender					
Help Seeking	15	34.2	28.1	7.9	29.9
No Help	47	23.8	27.7	7.4	41.1
Other Serious Offender					
Help Seeking	18	29.1	17.7	0.0	53.2
No Help	72	14.8	22.1	4.1	59.1
Minor Offender					
Help Seeking	7	12.7	12.7	16.4	58.2
No Help	35	6.0	10.4	6.7	76.9
Non Offender					
Help Seeking	59	10.4	19.3	3.0	67.2
No Help	259	3.5	11.2	4.4	80.9

tables, there is no statistically significant differences in the Time 2 delinquency classification between those for whom help was sought and other youth and children. The magnitude of the percentages suggests, if anything, that those for whom help was sought had equal if not higher delinquency levels in Year 2, in comparison with other youth and children. Although this does not mean that help-seeking was not beneficial, since parents who sought help may have been seeking help for the most troublesome youth. Neither does it demonstrate, however, that the help sought has been, in general, particularly successful.

There are some general similarities between the findings between the Pittsburgh and Denver Survey. First, roughly 30 percent or fewer of the children or youth have had help sought by them by their parents. Second, schools and professionals (MD's, Psychiatrists, Mental Health Workers) are the two most frequently used sources of help. Third, neither study finds evidence that such help seeking has had much effect on delinquency rates. Finally, it should be noted, that both sites are continuing the research work on help seeking and service utilization to better understand how and where such services may be of greatest benefit.

CHAPTER 18
RESILIENT YOUTH

Terence P. Thornberry and Carolyn Smith
Rochester Youth Development Study

Rolf Loeber and Welmoet B. Van Kammen
Pittsburgh Youth Study

David Huizinga and Anne Wylie Weiher
Denver Youth Survey

INTRODUCTION

Many adolescents in this country are considered to be "at risk" for serious and prolonged involvement in delinquency and drug use since they are exposed to one or more risk factors that elevate the likelihood of their involvement in these forms of deviant behavior. Because of their increased likelihood of engaging in these behaviors they are a particularly interesting group to study from both theoretical and policy perspectives.

While many adolescents can be considered to be "at risk" for delinquency and drug use, many of them do not actually engage in these behaviors, or at least do not engage in them to any significant degree. Youth in this category have been referred to as "resilient," since they are able to avoid deviant outcomes in the presence of high-risk factors (Rutter and Giller, 1983; Werner, 1989). The study of high-risk adolescents who do not succumb to deviant behavior is of special interest because it can shed light on factors which promote resilience in the face of risk and "propel stressed children towards wholesome adaptation" (Rutter, 1985). The purpose of this chapter is to contribute to

the growing body of research that identifies central protective factors for high-risk youth.

We know from past research that the risk of delinquency and drug use is higher in socially disorganized, high crime areas, often the site of multiple social adversities (Shaw and McKay, 1942; Wilson, 1989; Jencks and Mayer, 1990). Growing up in disorganized areas of cities that have high crime rates place children at special risk for delinquent and drug abusing outcomes because of factors such as the presence of criminal role models, the absence of conventional opportunities for youth, and the lack of institutional and social supports. Even in these areas, however, many adolescents avoid serious involvement in delinquency and drug use.

While we know that there are many resilient youth, we have not yet completely identified the factors that buffer or protect them from their environment. However, research has broadly confirmed the important role of the family, school and peers, factors that have been the focus of this report. For example, studies have indicated the importance of family attachment and family supervision (Garmezy et al., 1984; Werner, 1982), prosocial peers (Rutter and Giller, 1983; Rutter, 1985), school commitment and positive school experiences (Werner, 1982), and support from other important adults (Werner, 1984). This analysis seeks to explore the relative role of such protective factors in the outcomes of children from high-risk areas who do and do not become delinquent.

The illumination of protective factors which buffer children in delinquency-prone environments has important implications for policy and intervention. Emphasis on the identification and enhancement of protective factors is an important complement to delinquent interventions which focus on deviant behavior only after it occurs.

METHODS

Three methodological issues need to be addressed for this research. They are:

1. the identification of high-risk youth;
2. the identification of resilient youth; and
3. the identification of protective factors that discriminate between resilient and non-resilient youth.

HIGH-RISK YOUTH

As mentioned in the introduction, youth at high risk for delinquency, especially serious delinquency, are likely to live in high crime areas of the city. The literatures on the ecology of crime and on social disorganization theory support this premise (Shaw and McKay, 1942; Reiss and Tonry, 1986).

Therefore, high-risk youth are defined as those who lived in high crime/disorganized areas of the three cities at Year 1. Youth who did not live in these areas are generally at lower risk and are therefore eliminated from this particular analysis.

High crime/socially disorganized areas are defined slightly differently in the three cities. The specific measures are as follows:

1. In Denver, the areas include those neighborhoods of the city identified as being both "socially disorganized," on the basis of a formal social area analysis, and in the top one-third of reported neighborhood crime rates for 1986. Both from neighborhood disorganization and crime rate perspectives, youth residing in these areas are at high risk for delinquency.

2. In Pittsburgh, high crime areas are defined in terms of the number of offenses reported to the Pittsburgh police in 1987. The number of offenses reported in each neighborhood in the city was divided by the total population of the neighborhood and then the neighborhoods were grouped into low, medium, and high offense rate areas. For the purposes of this analysis, youth are considered to be at risk only if they live in the high offense rate neighborhoods. Youth from the low and medium offense rate neighborhoods are at lower risk and are therefore eliminated.

3. In Rochester, high crime areas are defined as those census tracts that fell within the top one-third of all census tracts in terms of their resident arrest rates. Resident arrest rates measure the proportion of each tract's adult population arrested by the Rochester Police Department in 1986, the year before the sample was selected. An examination of the overall distribution of the resident arrest rates suggests that those in the top third are substantially different from the remaining two-thirds.

RESILIENT YOUTH

Resilient youth are defined here as those who are at risk for delinquency or drug use because of their early residence in high crime rate/disorganized areas, but who have avoided serious involvement in delinquency during their adolescent years. It should be noted that serious involvement could still occur at later ages and that this analysis can only examine the issue of protective factors through the portion of the life course covered by the first three years of data collection efforts in these three studies, which generally covers the junior and senior high school years.

To measure avoidance of involvement in serious delinquency we first combined the street crime scale and the serious delinquency scale. We then calculated the cumulative offense rate for this combined scale over the three year period under investigation here. Then, for those who reported committing these offenses, we divided the distribution at the median. Based on this, three groups of respondents can be formed:

- 1) Resilient Youth -- those who report no involvement in the combined street crimes/serious delinquency scale over the three year period;
- 2) Low-rate delinquents -- those who score less than or equal to the median on this scale; and
- 3) High-rate delinquents -- those who score above the median on this scale.

It should be noted that while the resilient youth have no involvement in these more serious delinquent acts they may or may

not be involved in more minor forms of delinquency. This is perfectly acceptable since the concept of resilience does not imply that the youth is a "saint," only that he or she avoids involvement in the serious delinquency for which they are at risk. This definition, however, allows for the possibility that serious drug users could be considered "resilient." To avoid this, we eliminated from the analysis any respondent who reported no involvement in serious or street delinquency but reported using marijuana or other illicit drugs more than three times. This eliminated few respondents -- 7 in Denver, 1 in Pittsburgh, and 3 in Rochester -- but maintains the integrity of the group.

In brief, resilient youth are those who are at risk for serious delinquency because of their residence in high crime rate, socially disorganized areas but who avoid any involvement in street crimes or serious delinquency. They may or may not have committed minor delinquencies and they may or may not have experimented with drugs, but they were not frequent drug users. They will be compared to both low-rate and high-rate serious delinquents.

PROTECTIVE FACTORS

A variety of potential protective factors could be explored here but analysis is limited to examining the extent to which the explanatory factors examined in the previous analytic chapters also serve as protective factors for high-risk youth. Because of this strategy the measurement for the protective factors examined here has been presented in previous chapters. The concepts and

page numbers on which the measures are described are listed here.

They are:

Attachment to Parents	8-4
Set Time Home	9-5
Supervision Outside of Home	9-5
Parent's Avoidance of Conflict	9-5
Child's Behavior Worsens	9-5
Avoidance of Discipline	9-6
Commitment to School	10-3
Peer Delinquency	13-3
Peer Drug Use	13-3
Help-Seeking for Any Problem	17-7
Number of Types of Help Sought	17-8

All of these factors are measured at Year 1 so that they precede the bulk of the delinquent behavior measured here.

RESULTS

Table 1 provides descriptive data on the number and percentage of youth who are considered to be at risk in each of the three cities and, of those who are at risk, the percentage who are considered to be resilient, low-rate delinquents and high-rate delinquents. In Rochester, for example, 27 percent of the total sample are considered to be at risk based on their living in high crime areas. Of these respondents, 31 percent are resilient, 35 percent are in the low-rate delinquency category and 34 percent are in the high-rate delinquency category. In Pittsburgh the percentage of youth who are considered to be at risk is quite similar -- 28 percent. Out of the at risk group, however, there are fewer resilient youth (14 percent), and more low rate delinquents (44 percent) and high rate delinquents (42 percent) than in Rochester. Finally, in Denver, 63 percent of the sample are considered at risk; 35 percent are defined as

Table 1. Distribution of At Risk Youth and Resilient Youth in Each of the Cities

	<u>Denver</u>	<u>Pittsburgh</u>	<u>Rochester</u>
<u>At Risk</u>			
% of Sample	63	28	27
(n)	(553)	(134)	(268)
<u>Of those at risk,</u> <u>% who are:</u>			
Resilient	35	14	31
Low-Rate Delinquent	32	44	35
High-Rate Delinquent	33	42	34

resilient while 26 percent are low-rate delinquents and 40 percent are high-rate delinquents.

The core data for this chapter are presented in Table 2. In it we examine each of the protective factors to see if there are differences between the resilient youth, the low-rate delinquents, and the high-rate delinquents. In general, the major distinctions observed are between the resilient youth and the high-rate delinquents and between the low-rate and the high-rate delinquents. That is, there are only a few differences between the resilient and low rate delinquency groups but both of these differ from the high rate delinquency group. Given the topic of this chapter, our discussion focuses on the differences between the resilient youth and the high-rate delinquents. What factors buffer some of these at risk youth from frequently engaging in serious delinquency?

Several of the family factors are associated with resiliency, although the only one that significantly distinguishes between resilient youth and high-rate delinquents in all three cities is parental supervision. Greater parental supervision is associated with more resilient outcomes. In addition, attachment to parents is associated with resiliency in Denver and Rochester while consistency of discipline is associated with resiliency in Denver and Pittsburgh. In addition to these findings there are a few other idiosyncratic outcomes that occur at specific sites, but these are not discussed here since they are not consistent across sites; instead, we focus attention on the family protective factors that are found more

Table 2. Protective Factors Discriminating between Resilient, Low Delinquency and High Delinquency Youth; One-Way Analyses of Variance

Protective Factors	<u>Denver</u>			<u>Pittsburgh</u>			<u>Rochester</u>		
	<u>R.Y.</u>	<u>L.D.Y.</u>	<u>H.D.Y.</u> ⁺	<u>R.Y.</u>	<u>L.D.Y.</u>	<u>H.D.Y.</u>	<u>R.Y.</u>	<u>L.D.Y.</u>	<u>H.D.Y.</u>
<u>Family Factors</u>									
Attachment	22.32	21.52	20.59 ^{a,b}	3.0	4.1	5.1	33.2	31.8	31.2 ^{a,b}
Supervision	13.78	13.59	12.88 ^{a,b}	5.8	6.3	7.1 ^{a,b}	8.7	8.5	8.4 ^a
Set Time	8.71	8.42	8.50	9.4	8.5	8.7 ^{a,b}	3.3	3.2	3.3
Consistency of Discipline	13.80	13.71	13.16 ^{a,b}	7.9	9.0	9.4 ^a	9.0	8.9	8.6
Parent Avoidance of Discipline	15.91	15.58	14.79 ^a	7.1	7.0	7.7	5.1	5.0	5.3
Child Behavior Escalates	10.78	10.20	9.79 ^{a,b}	4.3	4.6	5.1 ^{a,b}	3.5	3.9	3.9
<u>Education Factors</u>									
Commitment to School	22.51	21.97	20.74 ^{a,b}	2.0	2.2	4.1 ^{a,b}	20.0	19.2	18.3 ^{a,b}
<u>Peer Factors</u>									
Peer Delinquency	18.98	21.54	25.78 ^{a,b}	1.8	3.7	7.4 ^{a,b}	9.2	10.5	13.5 ^{a,b}
Peer Drug Use	4.51	5.26	6.54 ^{a,b}	.15	.83	2.0 ^{a,b}	4.3	5.1	6.1 ^{a,b}
<u>Help Seeking</u>									
Parent Sought Help	.18	.29	.40 ^a	.26	.64	.70	.46	.44	.46
Number of Types of Help Sought	.31	.49	.65 ^a	.26	.41	.53	.70	.61	.78

^aSignificantly different from resilient group ($p < .05$).

^bSignificantly different from low delinquency group ($p < .05$).

⁺R.Y. = Resilient Youth; L.D.Y. = Low Delinquency Youth; H.D.Y. = High Delinquency Youth

uniformly. They are: parental supervision, attachment to parents, and consistency of discipline. It should be noted that these family factors show only modest effects, which is consistent with findings reported in Chapters 8 and 9.

School is also an important arena in which protective factors can be generated. In Denver and in Rochester, at risk youth who are resilient have higher commitment to school than do at risk youth who are high-rate delinquents. Commitment to school also distinguishes the low-rate and high-rate delinquents. In Pittsburgh, however, the differences are in the wrong direction, with resilient youth having lower, not higher, commitment to school.

Peer factors also appear to be important buffers to avoid the consequences of an at risk environment. At risk youth who are resilient are significantly less likely to associate with delinquent peers and drug using peers as compared to high-rate delinquents. These two peer scales also distinguish between low-rate and high-rate delinquents.

The final area examined here concerns help seeking on the part of the youth's caretaker. These scales are significantly related to resiliency only in Denver. Because the relationship is not significant at the other two sites we do not place a great deal of emphasis upon it.

CONCLUSION

This chapter examined the issue of resiliency. Some youth who are at risk for serious delinquency and drug use because of their residence in high crime rate/disorganized areas are

resilient and manage to avoid involvement in those behaviors. We found that in all three cities there are a group of at risk youth who are in fact resilient, avoiding involvement in serious delinquency and drug use over a three year period. Resilient youth constituted 35 percent of the at risk group in Denver, 14 percent in Pittsburgh, and 31 percent in Rochester.

This analysis also identified a number of factors associated with resilience. Among the family factors parental supervision, attachment to parents, and consistency of discipline appear to be the most important. In addition, commitment to school (at least in two of the three cities) and especially avoidance of delinquent and drug using peers appear to be major protective factors. In sum, at risk youth who have more conventional lifestyles at home, at school, and with friends appear much better able to avoid the negative consequences of residing in high risk, high crime neighborhoods. Intervention programs should probably place substantial emphasis on these factors to buttress and enhance the "natural" protective factors that appear to be at work based on this analysis.

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CHAPTER 19

SUMMARY AND CONCLUSIONS

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INTRODUCTION

This report has described some of the basic findings of the Program of Research on the Causes and Correlates of Delinquency. It has drawn, where appropriate, policy implications from those findings. In doing so, we have attempted to rely on the unique features of the three projects of the Program of Research to better inform current policy debates. First, we have capitalized on the longitudinal design of the projects to provide information on the development of delinquency and drug use and to focus attention on both the potential causes and consequences of these behaviors. Second, we have relied on the collaborative nature of the projects and focused attention on topics covered by the extensive core measures used at all three sites so that the findings and policy implications are based on replicated results. Third, we have attempted to broaden the topics discussed in this report by also including selected topics that are special foci of each of the projects. In combination, we hope that this strategy produces a comprehensive and informative report.

Although designed to be comprehensive, this report is by no means designed to be exhaustive of the topics that can and will be addressed in the future, both collaboratively and by each of

the projects. Indeed, analyses on even the topics included here are not meant to be exhaustive and there is still a tremendous amount to be learned from the research conducted during Phase I of the Program of Research on the Causes and Correlates of Delinquency. Nevertheless, we believe that the research reported here is substantial and addresses a number of important policy areas.

The present chapter is designed to pull together the results and policy implications reported in the previous chapters. To do so, the chapter is divided into two parts. The first one summarizes the basic findings and policy implications reported in the previous chapters. No attempt is made to elaborate the findings or provide a rationale for the recommendations. The interested reader is referred to the last few sections of each of the chapters for that information.

The second part of this chapter draws out some common themes that cut across the results presented in the individual chapters and, where appropriate, suggests policy implications for these common themes. These results and implications are presented in somewhat greater detail.

SUMMARY OF FINDINGS ABOUT THE DEPENDENT VARIABLES

The first five analytic chapters (Chapters 3 through 7) described various aspects of the dependent variables -- delinquency and drug use -- and their interrelationships with other problem behaviors. Our summary begins with these findings.

EPIDEMIOLOGY

The report began by presenting basic epidemiological data on the prevalence and frequency of self-reported delinquency and drug use. Among the findings are the following:

1. Within demographic subgroups there is a high degree of replicability across sites in the prevalence and in the frequency of delinquency and drug use. Thus, at least in urban areas, there appears to be a good deal of commonality in American delinquency and drug use.

2. As expected, rates of self-reported involvement in delinquency and drug use are higher for males than females. The rates for these behaviors tend to be somewhat higher for blacks and Hispanics than whites, but differences by race/ethnicity are not consistent or pronounced. Finally, self-reported rates of delinquency and drug use increase over age and by the age of 17 have not yet reached a peak.

3. The age of onset for delinquency, including serious delinquency, is quite young. By age 7, about a tenth of the boys have initiated street crimes, a third have initiated other serious offenses, and a fifth have initiated minor offenses.

4. For the ages covered by these studies, roughly 7 through 17, alcohol is clearly the drug of choice. Alcohol use begins early and, by age 16, half of the boys and girls are using alcohol regularly. The use of marijuana begins later and is less prevalent. Finally, the use of other drugs is relatively uncommon and prevalence rates do not exceed 10 percent.

The policy implications suggested by these findings include:

1. The early onset of delinquency and drug use suggest that programs need to begin at earlier ages than has typically been the case.

2. While uniquely focusing preventative efforts on boys would be misplaced, a special emphasis on the behavior of boys is warranted.

3. A greater emphasis on the use and abuse of alcohol in the "war on drugs" for teenagers and on alcohol prevention for children is clearly needed.

ARREST DATA

Chapter 4 examined data on arrest and involvement in the juvenile justice system in Denver and Rochester. Denver results are based on self-reported arrests, while Rochester results are based on official data collected from the Rochester Police Department. Among the major findings are:

1. In both cities a relatively high proportion of youth report experiencing an arrest or official contact with the juvenile justice system. For the oldest subjects, 17 year olds in Denver, 41 percent reported being arrested at least once. Most of those arrested are arrested for relatively minor offenses, however.

2. Arrest rates are higher for males than females and for older rather than younger subjects. In Denver, where self-reported data were analyzed, there were no significant racial differences while in Rochester, where official data were

analyzed, blacks had a higher arrest rate than whites or Hispanics.

3. The more serious delinquents, those who report committing street and other serious offenses, have a higher probability of arrest than do minor offenders. Examining only those arrested, however, yields a somewhat different picture. In Denver, two-thirds of those arrested were more serious offenders based on self-reports while in Rochester 56 percent were. Moreover, in Rochester, proportionately more of those arrested were self-reported non-delinquents.

4. Longitudinally, the Denver data suggest that being arrested in one year is associated with higher, not lower, self-reported delinquency rates in the subsequent year. This finding held within categories of the delinquency typology. This result is not consistent with a deterrence model which holds that official sanctions should reduce recidivism.

Among the policy implications drawn from these findings are the following:

1. The juvenile justice system appears to be responding in a rational and reasonably efficient manner to the problems of delinquency in Denver and Rochester. There is a reasonable overlap between those arrested and those who self-report more serious forms of delinquency.

2. On the other hand, most of the more serious delinquents are arrested on relatively minor charges, suggesting that the seriousness of their delinquent careers may be under-evaluated in the juvenile justice system. As a result, their placements and

treatments may be inappropriate. Greater attention needs to be paid to the seriousness of the juvenile's total career, which may require information beyond an arrest history, in making such decisions.

3. The longitudinal analysis in this chapter indicates that arrests are not associated with a reduction in later delinquent behavior and, indeed, are associated with higher rates of later delinquency. This relationship needs to be understood in greater depth. Perhaps there is a labeling effect; perhaps the juvenile justice system is appropriately identifying high-rate offenders early in their careers and arresting them. Whatever the ultimate outcome, the short-term effects reported here are not consistent with a deterrence model.

4. Finally, while a good proportion of serious offenders is arrested, a sizeable proportion is not. This suggests the need for general prevention and treatment programs to provide services to delinquent youth. The juvenile justice system cannot be relied on to accomplish these intervention tasks in their entirety because it only reaches a portion of all delinquent youth. General prevention programs may be the only way to control or limit the delinquency and drug use of youth in the general population.

CRIME AND SUBSTANCE USE

The Program of Research has two major emphases -- the explanation of serious delinquency and the explanation of drug use. Chapter 5 examined the longitudinal interrelationships between these two forms of deviant behavior. It reported that:

1. Substance use and involvement in delinquent behavior are clearly related, across ages, genders and ethnic groups. The more serious the youth's involvement in drug use, the more serious is his or her involvement in delinquency, and vice-versa.

2. Although this relationship is generally the same for both boys and girls, the co-occurrence of delinquency and drug use is particularly noteworthy for girls. Delinquent girls are more likely to be drug users than delinquent boys and drug-using girls are more likely to be delinquents than drug-using boys.

3. Examining the substance use/delinquency relationship longitudinally suggests that prior changes in substance use are related to later changes in delinquency. That is, if drug use increased (or decreased), delinquency was also likely to increase (or decrease). This direction of change was consistently stronger than prior changes in delinquency leading to changes in drug use. These results suggest that substance use tends, over time, to stimulate more changes in delinquent behavior than vice-versa.

The following policy implications were suggested:

1. Prevention programs for both delinquency and drug use should begin in pre-adolescence, rather than in adolescence as is typically done now.

2. Given the overlap between substance use and delinquency, intervention programs should be prepared to treat both behaviors for a substantial number of youngsters. Doing so should enhance the effectiveness of the program's effort to reduce each of the behaviors.

3. Joint prevention programs should be particularly directed at girls given the higher rate of overlap for delinquency and drug use for girls than boys.

4. Finally, there may be a somewhat greater pay-off in reducing delinquency by bringing drug use under control than in reducing drug use by bringing delinquency under control. Thus, there may be an indirect benefit (a reduction in delinquency) from successful drug prevention programs.

SEXUAL ACTIVITY AND DELINQUENCY

A related form of deviant behavior examined by the three projects of the Program of Research is teenage sexual activity and pregnancy. Among the findings are the following:

1. There was a remarkably high rate of sexual activity and pregnancy in the three samples. By ages 16 or 17, well over half of the boys and almost half of the girls have engaged in sexual intercourse and most of those were sexually active during the most recent year.

2. The rate of teenage pregnancy was also quite high. Fifteen percent of the girls in Denver and 16 percent in Rochester report, during Year 3, that they had been pregnant at some point in their lives. When attention is focused on only the oldest girls, those approximately 17 years old, almost half of the Denver sample and a third of the Rochester sample had been pregnant.

3. Boys and girls who are sexually active are far more likely to be involved in delinquency than those who are not.

Also, rates of drug and alcohol use are higher among sexually active youth and, importantly, girls who have been pregnant.

4. The temporal ordering of initiation into sexual activity and delinquent activity was not clear-cut and varied across sites.

The following policy implications were drawn:

1. The high rates of sexual activity among urban teenagers suggest that programs which focus on the overall prevention or postponement of sex among teenagers have a daunting task, indeed. It may be necessary, therefore, to recognize the high rate of teenage sexual activity and develop programs that attempt to minimize the social harm and difficulties that flow from it.

2. The lower pregnancy rate in Rochester as compared to Denver suggests that the presence of teen pregnancy programs in Rochester have a substantial impact on reducing pregnancy among sexually active teenage girls. Factors associated with the difference between the two cities need to be identified and, especially if they result from systematic community programs, used to reduce future rates of teenage pregnancy.

3. Delinquency treatment programs should routinely include modules on sexual activity and pregnancy, given the high overlap of these behaviors.

4. Drug treatment programs should be even more prepared to include modules on sexual activity because of the negative consequences of drug and alcohol use during pregnancy.

DEVELOPMENTAL PROGRESSIONS

Chapter 7 examined the issue of whether there are orderly progressions in the development of deviant behaviors. The first part of the chapter examined a relatively broad array of deviant and problem behaviors and the second focused specifically on theft at the Pittsburgh site. Among the major findings are:

1. A rather consistent gradient in the onset of various problem behaviors was observed. It began with resistive and impulsive behaviors, continued on to minor aggression and minor covert/delinquent behavior, followed in order by defiance, delinquency, violence and, finally, truancy and running away. This sequence was observed for both black and white boys.

2. There is also a rather clear developmental progression for theft-related behaviors. The progression starts with minor forms of theft, such as theft of items less than \$5 and shoplifting; moves on to moderate levels of theft, such as theft of items worth over \$50 and theft from a car; and, finally, includes major forms of theft, such as car theft and breaking and entering.

3. While the vast majority of those who engaged in major theft also reported earlier involvement in minor theft, the reverse is not true. That is, many subjects committed minor theft without moving on to more serious forms of theft.

The following implications were suggested:

1. The correct prediction of subjects who will engage in serious forms of delinquency and deviance is an important policy issue, but one that has not been successfully resolved by the

research literature. Identification of developmental progressions is an important first step in that regard since predictions are more likely to be successful for people who have started on the first stages of a developmental pathway than for the general population.

2. Almost all boys who engage in serious theft have engaged in prior, more minor forms of theft. Because of that, targeting preventative efforts at those who have begun this progression may be fruitful in preventing at least some amount of major theft in our society.

EXPLANATIONS OF DELINQUENCY AND SUBSTANCE USE

Chapters 8 through 18 examined the relationship between a variety of explanatory factors and delinquency and drug use. Explanatory factors cover the family, school, and peers, as well as such specialized topics as gun ownership, employment, and help-seeking for youth's delinquency and problem behaviors.

ATTACHMENT TO PARENTS

The first analytic chapter (Chapter 8) examined the relationship between attachment to parents -- the emotional link between parent and child -- and delinquency and drug use. Reports of attachment from both the child and the parent are included.

1. Children and youth who are strongly attached to their parents have lower concurrent levels of street crime and drug use. This generally applied to boys and girls, younger and older children, and racial and ethnic groups.

2. Longitudinally, earlier low attachment is associated with higher levels of later delinquency and drug use, while earlier delinquency/drug use is associated with later low attachment to parents. While evident, these longitudinal relationships are somewhat weaker and less consistent than the cross-sectional relationships.

3. Finally, reciprocal relationships between these variables were examined. Results indicate that these variables are only moderately interrelated. If anything, it appears that the impact of delinquency/drug use on attachment is greater than the impact of attachment on delinquency/drug use, the way these variables are typically thought to be related. Overall, the strength of the relationship between these variables is rather modest.

Some of the policy implications of these findings are:

1. The influence of attachment to parents on delinquency/drug use appears to be quite modest. Therefore, the effectiveness of organizing intervention programs around strengthening emotional bonds within the family is likely to be modest as well.

2. Given the relatively modest impact of low attachment on delinquency and drug use, especially longitudinally, it may be that little behavioral harm would be done to delinquents left in homes where emotional bonds are not very strong. The use of out-of-home placements for these youngsters may not be necessary, therefore.

3. The family remains one of the best sources of access to troubled youth. Overall, parents are overwhelmingly concerned about the well-being of their children. Therefore, the family may be considered an important arena for providing treatment even though the treatment may be most effective when targeted on factors more strongly related to delinquency and drug use.

FAMILY INTERACTIONS AND DELINQUENCY

The second chapter examining the role of family factors on delinquency and drug use (Chapter 9), looked at a variety of parenting behaviors. Specifically, it focused on issues of parenting practices -- supervision and communication -- and conflict between parents and their children. Among its observations are the following:

1. Data from all three sites indicated that supervision, monitoring, and conflict between parents and their children were significantly related to delinquent behavior. Although a general pattern of significance was observed, the magnitude of the relationships was quite small.

2. While both parenting practices and conflict were related to delinquency, only parenting practices were related to drug use. Again, the magnitude of these relationships was very modest.

3. The associations that were observed here tended to be more consistent for the total sample, when sample sizes were large to provide ample statistical power. When analyses shifted to smaller demographic subgroups, however, the relationship became somewhat weak and less consistent.

4. Using perceptions from both the parent and the child improved the measurement of these family interaction variables and their relationship to delinquency. Also, these combined assessments of family life were related to the seriousness of the child's and youth's delinquency.

5. Longitudinally, these results suggest that family interaction variables and delinquency may be reciprocally interrelated. That is, prior poor levels of family interactions predict later delinquency. On the other hand, prior delinquency predicts, just as well, subsequent problems in the area of family interactions.

Policy implications here are similar to those just discussed concerning attachment to parents (see above). In addition to those implications, these findings suggest:

1. Agencies and clinics that treat child behavior problems should continue their emphasis on training parents to avoid counter-productive interchanges with their children, to establish firm and fair rules, to reward pro-social behavior and to monitor and supervise their children.

2. Many forms of delinquency and drug use begin at earlier ages than is generally thought, a period in life in which parental influences, as compared to peer influences, are still strongest. Early intervention is particularly important given the relationship between the early onset of delinquency and drug use and later serious and chronic involvement in them.

COMMITMENT TO SCHOOL

The next two chapters examined educational issues, beginning with an assessment of how a youth's commitment to school is related to delinquency and drug use. The expectation, of course, is that the stronger the commitment -- the more the youth likes school, works hard at school, and so forth -- the less the delinquency and drug use. Among the major findings are:

1. Cross-sectionally, high commitment to school is associated with lower rates of delinquency and drug use. This holds for all major demographic subgroups, although the relationship for girls is somewhat weaker than that for boys.
2. Longitudinally, these variables are mutually interrelated over time. Low commitment is associated with higher rates of delinquency/drug use; high delinquency and drug use are associated with lower commitment.
3. Finally, while these variables are reciprocally related, the stronger effect is that delinquency and drug use reduce commitment to school rather than commitment to school reducing delinquency and drug use. This is not the typical causal direction presented in the literature.

Policy implications include:

1. The school should remain, and perhaps expand as, a major arena for efforts to prevent and treat delinquency.
2. The impact of delinquency and drug use on reducing commitment to school suggests that educators need to explicitly consider ways of reducing delinquency and drug use as a means of improving educational performance and success.

3. Since commitment to school and delinquency/drug use mutually influence each other over time, intervention programs should be holistic in orientation. That is, they should simultaneously include school-based programs, e.g., remediation, and programs that deal with the youth's behavior itself as a way of breaking the cycle of low commitment leading to higher delinquency and drug use, and then higher delinquency and drug use leading to lower commitment to school. Success in intervening in either of these areas -- school or deviant behavior -- may well have an indirect impact on improving the other area.

READING ACHIEVEMENT AND DELINQUENCY

The second chapter on educational effects (Chapter 11) used data from the Pittsburgh Youth Study to examine the relationship between reading levels and delinquency. A summary of these results follows.

1. Even by grade 1, black children had lower reading levels than whites. Also, between grades 1 and 2, black serious delinquents experienced a sharp decline in reading scores.

2. Low reading levels tend to predict the likelihood of the onset of serious delinquency.

3. Longitudinally, poor reading achievement and delinquency appear to mutually influence each other. Prior reading level predicted later subsequent delinquency, but prior delinquency was an even stronger predictor of a subsequently lowered reading level. Also, poor reading achievement increased the chances of serious delinquency persisting over time.

Policy implications drawn from these findings include the following:

1. Since blacks had lower reading scores than whites even at the first grade, intervention programs, especially for black youngsters, need to begin at pre-school ages. The differences observed at grade 1 tend to become magnified over the years and need to be dealt with early in life.

2. Remedial reading programs may contribute to a reduction in delinquency, while delinquency prevention programs may contribute to an improvement in scholastic performance, since each of these variables tended to be predictive of the other over time.

NEIGHBORHOODS AND DELINQUENCY

The next set of chapters in the report (Chapters 12 to 14) extend the analysis from the two central conventional institutions -- family and school -- to take into account broader influences such as neighborhoods and peers. The first of these considers the influence of family and neighborhood factors on the genesis of delinquency using data from the Pittsburgh Youth Study. Among its findings are:

1. As expected, adolescents from underclass areas had higher rates of delinquency than did adolescents from middle class areas.

2. Although at the individual level blacks have higher rates of delinquency than whites, this is only observed when neighborhood context is ignored. Importantly, blacks living in

non-underclass areas were not more delinquent than whites living in non-underclass areas.

3. When youth from families where parents provide proper family management are considered, underclass youth were still more delinquent than non-underclass youth. More generally, residence in underclass areas exerts an influence on delinquency even when a number of other important variables are controlled.

4. One way underclass areas appear to influence delinquency is via the higher exposure to delinquent and drug-using peers they generate.

A number of policy implications were derived from these findings. For example,

1. The socioeconomic context and environment of the person must be considered when developing intervention programs to curb delinquency.

2. Practitioners and decisionmakers need to take into account the fact that black youth are more apt than white youth to come from underclass areas with higher rates of exposure to delinquent and drug-using peers. Ignoring these social influences on crime, especially for black males, while focusing only on individual factors, is likely to lead to ineffective programs.

3. Although children from underclass areas are more likely to be delinquent, even when parents provide proper family management skills, not all youth from these social contexts are seriously delinquent. The factors that protect or buffer these

youth need to be identified so that they can inform future prevention programs.

PEERS AND DELINQUENCY

While the neighborhood analysis suggested the importance of peer influence on delinquency and drug use, Chapter 13 examined it directly. Among its findings are the following:

1. The relationship between associating with delinquent peers and drug-using peers on the one hand and delinquency and drug use on the other, is among the strongest observed in this report. It is robust and applies to all major demographic subgroups.

2. Both the longitudinal and panel analyses indicate that peers and delinquency are reciprocally interrelated. Over time, the more one associates with delinquent (or drug-using) peers, the more one engages in delinquency (or drug use). In addition, the more one engages in delinquency (or drug use), the more one associates with delinquent (or drug-using) peers. These longitudinal relationships are both strong and consistent.

Based on these results, the following policy implications were offered:

1. Peer networks must be considered an important target for treatment and prevention programs. Yet few existing programs attempt to reach the delinquent peer network itself. This should be made a higher priority area in prevention and treatment policy.

2. The peer networks of youth at high risk for serious delinquency/drug use should be identified and attempts should be

made to disrupt them. This could be done, for example, by re-orienting the network towards more conventional behaviors or by siphoning off the more peripheral members of the network to deprive it of its vitality.

3. While focusing on peer associations, it should also be noted that delinquency and drug use exert a sizeable impact on the selection of peer associations. Because of that, intervention programs need to be comprehensive, focusing attention on both associations and behavior.

GANG MEMBERSHIP AND DELINQUENCY

Gangs and gang violence are of central concern to criminological researchers and policymakers alike. Chapter 14 examined the characteristics of gang members in Denver and Rochester. It also examined the relationship between membership in gangs and delinquency/drug use. Some of the results of that analysis are:

1. The majority of subjects in both studies are not gang members. Unlike earlier research, however, both Denver and Rochester report high rates of gang membership among girls. Depending on the year, between a fifth and a half of the gang members are female. Also, gang members are more likely to be black or Hispanic than white.

2. Longitudinally, gang membership is quite fluid and transitory. In both cities, few adolescents report being a member of a gang for more than one year and the vast majority of gang members stay in the gang for relatively short periods of time.

3. As expected, gang members have substantially higher rates of involvement in delinquency and drug use than non-gang members. But all gang members are not alike. More transitory members have somewhat higher rates of offending than non-gang members. But stable members, those who join and stay in a gang for longer periods of time, have extraordinarily high rates of delinquency and drug use.

4. While gang members have generally higher involvement in street crimes, their involvement in street crime during the year in which they are a member of a gang is exceptionally high. Thus, there appears to be something about the gang milieu itself that generates increased involvement in serious criminal activity.

Based on these results, the following policy implications were offered:

1. Intervention programs designed to reduce street crimes and other serious forms of delinquency should include a focus on active gang members because of their greater involvement in delinquency and drug use while they are in gangs.

2. Although programs should focus on all active members, those who join and remain in gangs for long periods deserve particular attention.

3. The fluidity of gang membership should be used as a tool to disrupt the gang. Gang workers could focus attention on removing the more transient and peripheral members of the gang to weaken the overall structure of the gang network.

4. While efforts to disrupt and disband gangs are warranted, it is also important for prevention programs to keep as many youth as possible from joining gangs. Since gangs apparently attract youngsters who have already begun to engage in serious delinquency, both targeting serious delinquents for anti-gang initiatives, and general intervention programs that prevent the development of serious delinquency in the first place, are important.

GUN OWNERSHIP AND DELINQUENCY

Relatively little is known about patterns of adolescent gun ownership, its sources, and how it relates to criminal behavior. Chapter 15, using data on males from the Rochester Youth Development Study, examined this issue. Among its findings are:

1. More boys own illegal guns (7 percent) than own legal guns (3 percent). Of those who own illegal guns, over half report carrying them on a regular basis.

2. With respect to delinquency and drug use, legal and illegal owners of guns differ dramatically. Legal gun owners are not substantially different from non-gun owners in terms of involvement in delinquency and drug use. Illegal gun owners, however, are much more heavily involved in drug use, in gun crimes, and in street crimes. Indeed, three-quarters of those who owned illegal guns committed street crimes, as compared to 14 percent who owned legal guns.

3. The socialization pattern for legal and illegal gun ownership is quite different. Legal gun owners have parents who also own legal guns for sport, hunting, and the like. On the

other hand, illegal gun owners have friends who own illegal guns and they are far more likely to be gang members. For legal gun owners, the socialization appears to take place in the family; for illegal gun owners, it appears to take place "on the streets."

Among the implications drawn from these findings are the following:

1. Adolescents who own illegal guns, when they come to the attention of school and juvenile justice authorities, should receive special attention because they are likely to be involved in serious forms of delinquent conduct. Legal gun owners, however, are no more likely than the non-gun owners to be involved in delinquency/drug use.

2. Since illegally owned guns are carried regularly and regularly used in crimes, efforts to confiscate and remove guns from circulation are required. In particular, schools may be an important arena for such programs.

3. The rates of gun ownership and gun carrying are about the same as those for use of "hard" drugs (see Chapter 3 on epidemiology), and the results are just as deadly. Gun education programs, perhaps modeled after drug education programs, should be developed and taught in school systems where gun ownership is common.

YOUTH EMPLOYMENT AND DELINQUENCY

In American society, employment is often viewed as a solution to social problems such as delinquency and drug use. It seems to be based on the assumption that idleness is, indeed, the

devil's workshop. Chapter 16 examined the association between employment and delinquency/drug use, using data from Denver and Rochester. It found that:

1. There is no evidence that adolescent employment is associated with reductions in levels of street crime or drug use. These findings only apply to the adolescent years and have no bearing on the relationship between adult employment and crime.

2. While there is no evidence that youth employment reduced delinquency/drug use, there is some evidence of a positive association between these variables. That is, in Denver, youth who worked reported higher levels of involvement in delinquency and drug use. In Rochester, there was no difference between the working and non-working groups, but, among the workers, those who worked more also reported higher rates of delinquency and drug use.

These findings imply that:

1. Allowing adolescents to work may be associated with elevated rates of delinquency and drug use. There is certainly no evidence here that youth employment is associated with lower levels of delinquency/drug use.

2. Delinquency prevention and treatment programs centered around teenage employment may not be very effective, at least in the short run. Indeed, there is a distinct possibility that they will be counterproductive.

3. Given the attractiveness of employment as a solution to problems in American culture, however, it is likely that delinquency intervention programs will continue to include an

employment component. These should be carefully evaluated to determine if they are having counterproductive effects.

HELP-SEEKING BEHAVIORS

The final chapter in the analytic section (Chapter 17) examined the extent to which parents sought help for the disruptive and delinquent behaviors of their children. Using data from the Denver Youth Survey and the Pittsburgh Youth Study, results indicate that:

1. A relatively large proportion of the caretakers of these youngsters sought help for the mental health and problem behaviors of their youngsters. Approximately a third of the caretakers sought some external help for their children. In Pittsburgh, a fifth had sought help from a mental health professional and in both sites the two most frequently used sources are schools and professional counselors.

2. Despite the relatively high prevalence rates of help seeking, for a fairly large proportion of boys exhibiting problem behaviors and delinquency caretakers sought no help. For example, in Pittsburgh 50 to 70 percent of the caretakers of seriously delinquent boys had never sought help, and only a quarter had ever sought help from a mental health professional. Similar results were observed in Denver.

3. Among all professionals, the primary care physician (family doctor or pediatrician) was consulted least often.

4. Both studies examined the impact of help seeking on subsequent delinquent activity. Unfortunately, neither study finds that such help seeking had much of an effect on subsequent

delinquency and drug use. These findings should not be interpreted to add to the "nothing works" mentality. They only suggest that general help seeking, usually with only a few visits to the help provider, does not have a strong impact on later delinquency.

Several policy implications were suggested.

1. In light of the proportion of youngsters with problem behaviors and delinquency who do not receive services, the service delivery system needs to be carefully evaluated and reformed. Also, when contact is made it often does not lead to ongoing services. Again, the availability of services needs to be evaluated and improved.

2. Primary health care providers need to become more aware of mental health problems -- particularly predelinquent problem behaviors -- and screen more effectively for them.

3. Schools are a major source of help for families with troubled children. It may be worthwhile to improve their ability to screen for mental health and behavior problems, as well as to provide some of these services directly.

4. Finally, sizeable numbers of children grow up in this country without a primary health care provider and with only sporadic contact with help providing agencies. A clearly identifiable resource agency of first choice needs to be developed to provide for early detection of health problems, including mental health, delinquency, and substance abuse.

RESILIENT YOUTH

While many adolescents are at high risk for delinquency, not all of them actually become delinquent. Some of them -- resilient youth -- manage to avoid the risk. Chapter 18 dealt with this topic by attempting to identify factors that buffer or protect adolescents from risky environments.

Among the family factors, parental supervision, attachment to parents, and consistency of discipline appear to be the most important. Commitment to school and especially avoidance of delinquent and drug-using peers also appear to be major protective factors. In sum, youth at risk who have more conventional lifestyles at home, at school, and with friends appear much better able to avoid the negative consequences of residing in high-risk, high-crime neighborhoods.

COMMON THEMES

The previous section of this chapter summarized the basic findings and policy implications for each of the data analytic chapters of this report. The final task for this report is to discuss some common themes developed from empirical results that cut across the various chapters and suggest policy implications that flow from them.

REPLICABILITY OF RESULTS

One of the hallmarks of good science is the replication of research results. Despite this, criminological research and, more generally social science research, has not paid a great deal of attention to replication. One of the unique features of OJJDP's Program of Research on the Causes and Correlates of

Delinquency is its effort to replicate findings through the use of core measures in three different research settings.

The results reported here indicate that this emphasis was well worthwhile. Despite the cynical view of some critics who claim that criminological research and theory are too underdeveloped to generate replicable hypotheses, virtually all of the results reported here were replicated across the projects. This includes the epidemiological data reported in the early chapters and the analytic relationships discussed in the later chapters. It includes results for simple and sophisticated analytic techniques, for stronger and weaker relationships, for cross-sectional and longitudinal relationships, and so on. In sum, across a wide array of topic areas -- none of which was selected because of its ability to replicate results -- the findings of the Program of Research suggest a very consistent set of causes and correlates of delinquency.

The policy implication of this observation is both subtle and far-reaching. For the commonality of results in Denver, Pittsburgh, and Rochester suggest that some fundamental aspects about the nature of delinquency and drug use have been described in this report. And because of that, the policy implications drawn from these results -- either those presented above or those drawn by the reader -- have great credibility. For they are based not on idiosyncratic findings but on findings that apply in three different cities with different populations, traditions, and histories. That is a substantial accomplishment, indeed.

EARLY ONSET OF BEHAVIORS

Delinquency and drug use are typically thought of as adolescent problems. No doubt this stems from the accurate observation that they peak and become most problematic during middle and late adolescence. Nevertheless, this report has clearly demonstrated the very early onset of delinquency and drug use, as well as a host of other problem behaviors. The latter include: being arrested, family alienation, school problems including poor reading ability, precocious sexual activity and pregnancy, and problem behaviors such as resistive and impulsive behaviors, minor theft, and defiance. For a sizeable number of children these behaviors were quite evident before the teenage years began. Also our research, as well as prior research, suggests that early onset is related to more serious and extensive delinquent and drug-using careers.

These results imply that early intervention is necessary and may be quite effective in preventing delinquency and drug use. If these behaviors are initiated early in the life course for some of our most chronic offenders, then intervention should be initiated early as well to disrupt these behaviors before they become a fixed part of the person's behavioral repertoire. Based on the data presented here, delinquency prevention programs may well need to start by the middle grades of elementary school, or before.

This suggestion raises the difficult issue of the correct prediction of future chronic offenders, since not all early delinquents continue their deviant behavior. But early onset

itself appears to be a predictor of later chronicity and if early onset is coupled with other variables related to very high rates of delinquency and drug use (e.g., early reading and school problems, gang membership, and gun ownership), then early prevention for at least these types of youth appears warranted.

CO-OCCURRENCE OF PROBLEM BEHAVIORS

One of the strongest and most consistent findings reported here concerns the co-occurrence of problem behaviors in different domains, which tend to successively unfold over time. In brief, "bad kids" seem to do bad things and plenty of them.

Clearly, delinquency and drug use are interrelated and each tends to exacerbate the other. In addition, we have seen that delinquents and drug users are more apt than their counterparts to be arrested, to engage in precocious sexual behavior, to have reading problems, to exhibit oppositional and acting out behaviors, to join gangs, and to own guns.

While all delinquents do not engage in all these other forms of problem behavior, there is clearly a substantial overlap of differing pathologies among the most chronic offenders. This suggests that the juvenile justice system and social service agencies that deal with delinquents and drug users need to adopt broad-based, comprehensive intervention programs. For it is likely that their clients will exhibit multiple problems, all of which appear to be interrelated, with each exacerbating the other. To focus on only one or two of these would not meet the true needs of the clients and would also probably be ineffective since the unaddressed problems would continue to fester. In sum,

the co-occurrence of problem behaviors suggests the need for and importance of comprehensive prevention and treatment programs.

DELINQUENCY AS A CAUSE

Criminological research has been overwhelmingly concerned with identifying the causes of delinquency and drug use. So much so, in fact, that it has tended to ignore the rather obvious observation that delinquency and drug use also have consequences. Indeed, they may have consequences on factors typically thought of as their cause.

The results reported here suggest that delinquency and drug use exert a rather sizeable impact on many other variables. These include poor attachment to parents, counterproductive family interactions, low commitment to school, reading problems, and associations with delinquent peers. Rather than being only potential causes of delinquency and drug use, each of these factors has been shown to be influenced by prior levels of delinquency and drug use.

This observation suggests that prevention and treatment programs need to adopt a holistic perspective. Rather than focusing only on changing the "causes" of delinquency and drug use, they need to recognize that delinquency and drug use also exert a causal influence on those factors. Programs need to realize that delinquency and drug use develop over the life course and play an active role in influencing other attitudes and behaviors. Recognizing this suggests that intervention programs should treat the client in a holistic fashion, attempting to

understand and change the role that delinquency and drug use play in the person's life.

THE IMPORTANCE OF PEERS

The rather central impact that associating with delinquent and drug-using peers has on delinquency and drug use was seen in a number of chapters. Obviously it was seen in the chapter on peer associations, but also in the chapters on neighborhoods, gang membership, and gun ownership.

Despite the empirical and theoretical importance of peer associations, few prevention and treatment programs are targeted at the peer network itself. While many include strategies to alter the effects of peer influence, few actually attempt to alter the peer network. In part, this is due to the inherent difficulty of gaining access to adolescent friendship networks and to the daunting task of re-orienting delinquent peer groups towards more conventional pursuits. Nevertheless, if peer networks are as important as they appear to be from these results, a greater emphasis must be placed on developing and evaluating potential programs in this area. Indeed, this may be the single area in which the greatest progress towards reducing delinquency and drug use can be made.

THE SCHOOL AS AN ARENA FOR INTERVENTION

The school plays a very central role during childhood and adolescence. Indeed, the school is the primary conventional institution for adolescents and probably the only institution that touches on all the other factors dealt with in this report -- family, neighborhood, peers, gangs, and the like. The school

is also viewed by the families of these youth as a major provider of services and counseling (see Chapter 17).

Because of this, we recommend that the school systems of our major cities become a more important arena than they currently are for providing broad-based prevention and treatment programs for youngsters at risk for serious delinquency, drug use, and related problems. In fact, the school may be the only conventional institution capable of reaching all these diverse areas of life and of providing the type of early, comprehensive, and holistic programming called for in this report. This recommendation suggests that schools expand their mission beyond that of simple education, to provide services for the broader growth and development of their charges. To do so, requires a re-definition of purpose and the necessary resources and staffing to take on this challenge. Currently, most non-educational support is allocated to middle and high schools. They need also be allocated to elementary schools where these problems first become recognizable.

It should also be noted that it may well be in the schools' educational interest to broaden its mission, since results of this research suggest that delinquency and drug use interfere with such educational functions as commitment to school and reading achievement. Finally, since commitment to school was found to be instrumental in reducing delinquency and drug use, school and classroom programs designed so that all children can succeed and become attached to school may limit the negative

consequences of failure and future delinquency and drug use. Prototype programs have been developed and are under evaluation.

DEVELOPMENTAL PROGRESSIONS

Early in this section we noted that delinquency, drug use, and related behaviors began at earlier ages than previously thought. We close by pointing out that at the end of Phase I data collection, delinquency and drug use continue to increase (see Chapter 3) and the high rate and severity of criminal conduct associated with the early adult years have not yet been reached. But they will be, most assuredly, by many of the subjects of this Program of Research.

Because of that, we must caution that these findings and policy implications only cover a portion of the total criminal career. They must be viewed, therefore, as somewhat incomplete, based on the best evidence we can currently muster, but before the full life stories of these subjects has been told. Only by continuing to follow these same subjects in the future, can a fuller and more complete picture of the causes and correlates of delinquency be seen and a fuller set of policy implications drawn. There is much left to be done.