

TRAJECTORIES OF OFFENDING AMONG AFRICAN AMERICAN ADOLESCENTS: THE
ROLE OF CUMULATIVE DISADVANTAGES

by

SARA ZANE MORRIS

(under the direction of Ronald L. Simons)

ABSTRACT

The current study focuses on trajectories of offending among African Americans from childhood through late adolescence. Using life-course theory as a guide, there are two main goals. The first is to describe the number and type of trajectories of delinquency separately for males and females, as much research in the past on trajectories has focused on white and/or male samples. The second goal is to investigate both early childhood characteristics and cumulative disadvantages, both in the form of potential “turning points” such as experiencing a family transition and victimization and cumulative experiences of stressors such as racial discrimination, and their effects on pathways of delinquent behaviors. Results indicated that there were four distinct groups of offenders among both males and females, but there were important differences between the two gender samples in patterns of offending. Males displayed higher levels of delinquency at each time point, and the pattern over time for one trajectory group in particular was different for the male vs. female sample. In addition, a number of factors were important in predicting patterns of delinquency over time. For both genders, delinquent friends and racial discrimination positively predicted delinquency. For males these effects were

slightly stronger. Within the female sample, levels of authoritative parenting and excelling in school also significantly predicted trajectory group membership. The results represent a contribution to developmental research in criminology, and directions for future research stemming from this project are also discussed.

Keywords: life-course theory, delinquency, group-based trajectory model

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B.A., Emory University, 2004

M.A., Georgia Southern University, 2007

A Dissertation Submitted to the Graduate Faculty of the University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GA

2011

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May 2011

DEDICATION

For my grandmothers, Betty Zane and Sara Helen, who gave me not only my name, but a legacy

I can only hope to live up to.

ACKNOWLEDGEMENTS

There were many people who helped make the completion of this dissertation and degree possible. First, thank you to my family, without whom I never would have made it through ten years of school to get to this point. Your constant support and guidance has been invaluable and I will always be grateful for it.

I would also like to thank Ron Simons for his support and mentoring throughout my time at UGA. This project is undoubtedly better as a result of his advice and input throughout the process. I am grateful for the opportunities he has provided for me and I have learned a great deal through working with him for the past four years. I am also incredibly thankful to my committee: Jody Clay-Warner, Tom McNulty, and Leslie Simons for their advice and input, all of which helped to improve this study. I would like to thank Jody Clay-Warner in particular for her guidance and advice throughout my time here as a graduate student, both in scholarly pursuits and in terms of practical advice about life as an academic.

Thank you to all the individuals who have contributed and worked on the FACHS project. I am especially grateful to Karlo Lei for his invaluable help on statistical and methodological questions, both for this study as well as others I have worked on with the FACHS data.

I would also like to thank everyone in the Sociology department, especially April Brown and Subrina Dake. To my fellow graduate students: thank you for being a constant source of support. A special thank you to Katie, Mary, Laura, Cheri, and Jackson – you have always been there to listen, give advice, and answer questions, and I wouldn't be here today without the help from all of you.

In terms of official acknowledgements, this research was supported by the National Institute of Mental Health (MH48165, MH62669) and the Center for Disease Control (029136-02). Additional funding for this project was provided by the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism.

Last, but certainly not least, thank you to my soon-to-be husband, Lee. You have enriched my life in so many ways, thank you for always being there to listen no matter what the issue. Thank you for supporting me unconditionally throughout this entire process; I am not only a better scholar but also a better person as a result of knowing you.

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CHAPTER 1

Introduction

Predicting offending patterns based on individual characteristics is not a new goal within criminology. The early finding that a small proportion of the population was responsible for a large proportion of crimes committed only further spurred this line of research (Wolfgang, Figlio, and Sellin 1972). At middle adolescence, delinquency is as close to normative as in any other point in life. While this may be the case, most teenagers do not continue on to pursue a life of crime but rather desist and lead more mainstream lives by the end of their teenage years. At the same time, most criminal adults have some history of antisocial behavior in childhood. Much research in criminology has focused on between-individual differences, or trying to understand why some individuals offend and others do not. In contrast, the developmental approach posits that experiences throughout the life course can change an individual's pattern of offending, regardless of stable personal characteristics (Sampson and Laub 1997).

A substantial amount of criminological research focuses on the teenage years of life, as these years are clearly important in understanding criminal and delinquent behavior. In light of the fact that most individuals do not persist in their criminal endeavors there is also a need to investigate what factors can distinguish these lifelong offenders from those bound by typical adolescent trouble-making. In addition to these early characteristics or circumstances within an individual's life, can unexpected events that occur in adolescence alter an individual's trajectory of behavior?

Life course theory (LCT) posits that childhood behavioral characteristics and experiences determine whether or not an individual will act out in deviant ways just as a teenager and then

desist (as most do), or become a persistent offender throughout their life. This theory argues that specific events or “turning points” (such as marriage, becoming a parent, etc) later in life can affect the development of offending behavior. Glen Elder describes this perspective as “a theoretical orientation on the life course defines a common domain of inquiry with a framework that guides research in terms of problem identification and formulation, variable selection and rationales, and strategies of design and analysis...in concept, the life course generally refers to the interdependence of age-graded trajectories, such as work and family, that are subject to changing conditions in the larger world, and to short-term transitions, ranging from birth to school entry to retirement (1996: 31 - 35).” As he describes, this framework is an overarching paradigm that can inform many different types of investigations using various behavioral theories.

Two prominent criminologists, John Laub and Robert Sampson, have integrated LCT principles with the framework of social control (Laub and Sampson 2003; Sampson and Laub 1997; Sampson and Laub 1993). In two books and numerous articles, they re-analyzed and brought to life data collected by Sheldon and Eleanor Glueck in the early to mid 1900s. Sampson and Laub (1993) argue that informal social ties and bonds must be taken into account at all ages – childhood, adolescence, and adulthood – although the specific form of these bonds may change given the stage in life.

An integral component of Sampson and Laub’s delineation of LCT is the idea of a “turning point”; these important life events can affect an individual’s pattern of behavior in both positive and negative ways. They conceptualize these events as “times of decision or opportunity when life trajectories may be directed on to more adaptive or maladaptive paths (Rutter and Rutter 1993: 244).” Seen in this way, these life events can have positive effects

(such as becoming gainfully employed and as a result reducing offending) or harmful consequences (such as an early arrest that leads to difficulty in leading a successful life) (Sampson and Laub 1997).

Purpose of the Study

The current study has two main objectives. The first is to summarize number and type of group trajectories of delinquency within a sample of African American males and females. Secondly, the focus of analysis shifts and becomes the influence of various predictors of offending and their influence on trajectory group membership. The goal of this analysis is to further examine whether or not high-rate offenders can be distinguished from others by early familial and personal characteristics. Lastly, factors within an individuals' life that may begin to influence changes in offending as respondents start the process of "aging out" of crime are examined. Both family and peer relationship characteristics, as well as several types of cumulative disadvantages, including life events identified by Sampson and Laub (1993) and others as turning points are considered to understand changes in offending up to early adulthood/late adolescence.

Data are drawn from the Family and Community Health Survey (FACHS), a longitudinal investigation of the development of African American adolescents in rural and suburban areas of Iowa and Georgia. This rich dataset includes self-report interview data from respondents, their primary and secondary caregivers, and in later waves a best friend and romantic partner of the primary respondent. It contains a wealth of information on parenting, health, and antisocial behavior as well as predicted causes and correlates. At wave 1 the respondents are 10-12 years old, an age that is particularly relevant for the question at hand as this represents the age when most individuals begin offending. Data from waves 2, 3, and 4 are also used to plot the

trajectories of delinquency. These waves contain data when respondents are 12-14, 15-17, and 18-20 years old, respectively.

The use of this dataset combined with the statistical method will provide an answer to the main research question: how do early family and personal characteristics along with the experience of cumulative disadvantages influence an individual's trajectory of offending through late adolescence? The current study will improve upon previous research as described in the following chapter, and add valuable knowledge to criminological and sociological research.

The next chapter outlines the theoretical background for the current study, followed by the literature review and an outline of research questions and hypotheses. Chapter 4 describes the dataset in detail, as well as the measures to be used for this study and the analytic strategy followed. Chapter 5 describes results, including the best-fitting model of trajectory groups for both males and females, "profiles" of distinct ways in which the trajectory groups differ on important domains, and the multivariate results from multinomial regression models. Chapter 6 contains discussion of these results and offers conclusions based upon the previous chapters. The final chapter concludes the study.

CHAPTER 2

Theoretical Background

The theoretical underpinnings of the current study are drawn from several sources. The broad theoretical perspective employed is the life-course perspective. This framework represents a way of looking at individuals' lives within the full context of their experience, taking into account their history and linkages to others. Two concepts are particularly important to the life-course paradigm. This perspective looks at one's life as a trajectory marked by various transitions from one state to another. As discussed above, these transitions are seen as linked together, and each affects the next. "transitions are always embedded in trajectories that give them distinctive meaning (Elder 1996: 36)." Major life events that alter one's behavior cannot be disentangled from the pathway in which they are rooted; LCT is distinguished from other perspectives in part by its developmental focus.

Citing Elder (1998), Laub and Sampson describe several principles that the life-course perspective is based upon: "(1) a focus on the historical time and place that recognizes that lives are embedded and shaped by context; (2) the recognition that the developmental impact of life events is contingent on when they occur in a person's life—that is, timing matters; (3) the acknowledgement of intergenerational transmission of social patterns—the notion of linked lives and interdependency; and (4) the view that human agency plays a key role in making choices and constructing one's life course (2003: 33)." Furthermore, they argue that using a life-course perspective "leads to a focus on continuity and change in criminal behavior over time, especially its embeddedness in historical and other contextual features of social life (Laub and Sampson 2003: 33)."

Let's consider each of these principles in more detail. First, the importance of historical time and place. One's life experience is largely affected by the social climate of the time and place in which they are born. For example, the Glueck data analyzed by Sampson and Laub must be interpreted in light of the fact that these men were born between 1924 and 1935 and most lived through the Great Depression and World War II; they were growing up during a time in which the US was marked by unrest and instability (Sampson and Laub 1993). Their experiences as adolescents are surely very different from an individual in their teens today. The current study uses a sample of African-American adolescents from rural and suburban areas in the US, but the experiences of these individuals (between the ages of 19-21 in 2007) will obviously be very different than if the sample consisted of individuals reaching adolescence during the Civil Rights movement.

This principle is further illustrated in terms of cohort and period effects. A group of individuals all born within a specific time frame (a cohort) may all be influenced by the time period in which they come of age; this appears when a specific social change influences a group born within a specific time frame more than those born a few years later (i.e. the Depression-era families). We also see this principle expressed as a period effect; this is apparent when a social change influence is relatively the same across several cohorts (Elder 1996).

The second major principle of the life course paradigm is the notion of timing. While there may be similarities in the effects of certain life events, if these events occur at different time points in one's life the outcomes could be very different for two similar individuals. Elder says "social and developmental transitions are not likely to have the same correlates and influences over the life course (1996: 33)." For example, becoming a parent is a very important life event. However, timing of this life event can make an enormous impact in the way

parenthood influences one's life course. Teenage pregnancy is linked to a host of negative outcomes including less educational attainment and lower occupational success later in life (Coley and Chase-Lansdale 1998; Taylor 2009). In contrast, an individual who has their first child at an older age and after marriage is at a much lower risk for these adverse outcomes. Antisocial behaviors such as early sexual activity, risky sexual behavior, and other forms of delinquency are often co-occurring (Ary, Duncan, Duncan, and Hops 1999; Huizinga, Loeber, and Thornberry 1993).

Thirdly, one's own trajectory is not the only consideration; our lives are inherently linked with others around us. Elder (1998) describes this principle succinctly in his discussion of Depression-era families. Men who were husbands and fathers during this time experienced extreme hardships and those that were inclined toward irritability tended to be more explosive with their spouses and children. The wives and children of these men found their lives influenced significantly through these links. Similarly, the adolescents making up the sample for the current study are undoubtedly influenced by their family structure and social location.

The last principle of the life-course paradigm is the place of human agency. Elder (1998) argues that agency is important in understanding exactly how one's life course is constructed. He uses the example of Depression-era families to illustrate this as well, and points out that although many experienced the same economic hardships, some made choices that led them to "build a new life course" and improve their lives.

Linking LCT and Informal Social Control

Robert Sampson and John Laub have consistently been leading scholars within the field of criminology. Their seminal works reanalyzing data collected by Sheldon and Eleanor Gleuck (Laub and Sampson 2003; Sampson and Laub 1993) have provided foundational knowledge in

the area of developmental criminology. Their age-graded theory of informal social control (Laub and Sampson 2003; Sampson and Laub 1993) is an extension and development of life-course theory (Elder 1998). They argue that throughout an individual's life social institutions are influential to differing degrees. For example, children and pre-teens are influenced more heavily by their parents than older adolescents but as youth reach adolescence, the influence of parental behaviors and attitudes begins to fade in favor of peers (Cook, Buehler, and Henson 2009). Most other theories of crime are non-developmental and focus on between-individual differences. Despite the fact that differences in antisocial behavior are stable over time, most children who display antisocial behaviors do not grow up to be lifelong criminals.

Most other theories cannot explain both this continuity and discontinuity in behavior; Sampson and Laub's intention is to understand this phenomenon. They argue that there must be something about changing influences over time that can account for this. Their theory of age-graded informal social control tries to explain trajectories of offending in this way. Support has come from a variety of scholars showing the importance of life events such as divorce or loss of a parent, steady employment, and entering into a stable romantic relationship. While these represent different types of phenomena, they are all examples of transitions, often identified as "turning points" that one may experience in their lives, and all can have unique impacts on behavior. This illustrates an application of the fundamental concepts of transitions embedded within trajectories found within Elder's (1996) original conception of the life-course paradigm, as discussed above.

Sampson and Laub's intention is to include both influences of childhood as well as experiences later in life together to understand developmental outcomes. They develop a basic thesis in their first book: "(1)structural context mediated by informal family and school social

controls explains delinquency in childhood and adolescence; (2) in turn, there is continuity in antisocial behavior from childhood through adulthood in a variety of life domains; and (3) informal social bonds in adulthood to family and employment explain changes in criminality over the life span despite early childhood propensities (Sampson and Laub 1993: 7).”

Laub and Sampson (2003) argue that there are three different ways to understand the phenomena of desistence and persistence in offending from a developmental perspective. The first, population heterogeneity, is a “kinds of people” argument. This viewpoint emphasizes that behavior over the life course is a reflection of differences between persons; these characteristics are established early in life and remain stable over time. Many early criminological theories relied upon this type of argument to explain deviant behavior. For example, Gottfredson and Hirschi’s (1990) well known general theory of crime argues that individuals have an underlying propensity to commit crimes that is established early in life, and later events do little to change this propensity.

The second, state dependence, is a “kinds of contexts” argument. Past behavior constrains or sways future events; the specific context one is in can causally affect current and future behavior. This more closely represents a purely developmental perspective. Scholars with this viewpoint argue that the choices one makes are dependent upon the current life circumstances (Laub and Sampson 2003).

Lastly, some take a mixed model approach, which combines state dependence and population heterogeneity and argues that both differences in persons and contexts matter. However, according to the authors all three lack focus on and explanation of change in behavior. While the developmental approach is useful, they believe the best way to understand offending over the life-course is by blending this approach with a revised version of social control theory.

This revised theory, “age-graded informal social control”, represents this mixed approach. This framework identifies both fixed characteristics of individuals and their past experiences as important in determining future behavior (Laub and Sampson 2003).

Furthermore, this implies that the life-course perspective is focused on both change and continuity. As discussed above, antisocial behavior is highly stable over the life course, in that most criminal adults show early signs of deviance. However, the majority of adolescents engage in delinquency for a limited amount of time and then “age out” of crime. This discrepancy is what Sampson and Laub’s theory was designed to explain. Their goal is to explain both the continuity of antisocial behavior but also which circumstances and life events can alter an individual’s trajectory and either push them towards or pull them away from a future of antisocial behavior (Sampson and Laub 1993).

LCT and Taxonomic Approaches

Perhaps one of the other best known lines of research within the life-course framework has been spearheaded by Terrie Moffitt and colleagues (Moffitt 1993), whose main argument has been for two sets of offenders: “life-course persistent” and “adolescent-limited”. Moffitt argues that certain psychological and familial factors can distinguish these two groups of offenders early in life. Similar patterns have been identified by other researchers, although the labels assigned to each group offenders differs slightly (Loeber, Wung, Keenan, Giroux, Stouthamer-Loeber, Van Kammen, and Maugham 1993; Patterson and Yoerger 1993). Moffitt’s taxonomy is important not only because of its contribution to our theoretical knowledge but also because a substantial amount of empirical studies have used this framework to investigate life course theory, many of which are discussed below.

As described above, for most individuals the highest rates of delinquency are found during adolescence. Much past research has shown that after the age of 16-17, most individuals' rates of offending drop dramatically and remain very low or nonexistent thereafter. For a small subset of offenders, however, offending continues to increase or remains stable and chronic throughout life. These "life-course-persistent" offenders "engage in antisocial behavior at every stage of life...a substantial body of longitudinal research points to a very small group of males who display high rates of antisocial behavior across time and in diverse situations (Moffitt 1997: 13-15)."

The second group of offenders identified by Moffitt is described as "adolescent-limited". This group of individuals is much greater in number and populated by what we know as "normal" teenagers. Adolescent-limited offenders are best described by their title. Most teenagers engage in some forms of delinquency during their adolescence, whether in the form of status offenses (truancy, drinking underage) or other minor delinquent acts such as shoplifting. Moffitt argues that "discontinuity is the hallmark of teen-aged delinquents who have no notable history of antisocial behavior in childhood and little future for such behavior in adulthood (1997: 16)." These adolescents change their behavior based upon the situation – as a child they were probably well-behaved, although as a teenager they may choose to drink alcohol given the right circumstances.

Moffitt (Moffitt 1993; Moffitt 2003; Moffitt 2006; Moffitt, Caspi, Dickson, Silva, and Stanton 1996) and others have argued that these groups of offenders are distinct from one another in a number of ways, one of the most important being age of onset. She posits that one of the hallmarks of a life-course-persistent offender is an earlier age of onset of delinquency. Other factors, such as inept parenting, cognitive deficits, and psychological traits such as low

self-control lead to early interactions with teachers, law enforcement, and other authority figures. Most of these interactions will lead to negative consequences, which in turn limits options for a change in lifestyle, a process whereby “life-course-persistents become ensnared by the consequences of their antisocial behavior (Moffitt 1997: 23).” This process, known as “cumulative continuity”, is a gradual build-up of consequences associated with delinquent or antisocial behavior, wherein each individual act snowballs upon the results of previous acts, making it more and more difficult for one to change the trajectory of their own life.

In contrast, most adolescent-limited offenders do not have these early markers. Instead, they have more normative childhoods, and do not begin to display antisocial or delinquent behaviors until a later age. Moffitt (1997) argues that this occurs because these well-behaved adolescents see their delinquent peers obtaining indicators of adult status such as “cars, clothes, drugs, entry to ‘adults-only’ leisure settings (26).” These privileges of adulthood that life-course-persistent offenders possess are often enough to allure other adolescents into mimicking some of their actions. According to Moffitt, this type of imitation is the most important reason behind peer effects on delinquency.

These adolescent-limited offenders continue this behavior for a brief period of time because it reinforces their desire to be seen as mature and independent. Moffitt says, “I suggest that every curfew violated, car stolen, drug taken, and baby conceived is a statement that one has left childhood behind, and thus is a reinforcer for delinquent involvement (1997: 31).” Each act of delinquency results in a feeling of independence; furthermore, by middle adolescence these behaviors are normative and expected. The divergence that happens as individuals reach the end of their teenage years is a response to changing responsibilities. For adolescent-limited offenders, responsibilities of work and/or school begin to take precedence over delinquent

activities and most begin to realize that these activities may threaten their future success. In addition, some of the acts that were delinquent or taboo (i.e. drinking, sexual activity) become more acceptable as they grow older (Moffitt 1997).

In addition to the fear of these negative consequences affecting future goals, these adolescent-limited offenders also do not have the same psychological and familial deficits as most life-course-persistent offenders. They are not battling against a history of antisocial behavior that has accumulated for years. This results in better opportunities for success in postsecondary education and the work force (Moffitt 1997). She argues “At the crossroads of young adulthood, adolescence-limited and life-course persistent delinquents go different ways. This happens because the developmental histories and personal traits of adolescence-limiteds allow them the option of exploring new life pathways. The histories and traits of life-course-persistents have foreclosed their options, entrenching them in the antisocial path (Moffitt 1997: 37).”

Though this theory is well known among criminologists, its empirical support has become less clear in recent years. While a taxonomic approach may be appropriate, dividing offenders into only two groups may be problematic. The advent of new methodological approaches in part has led to speculation of a larger number of distinct offender groups (Nagin 1999; Nagin and Land 1993). While studies have consistently shown the presence of these two groups, other distinct trajectory groups have appeared as well, including a group characterized by antisocial behavior in childhood but not later in adolescence and a group displaying little antisocial behavior at any point in their lifetimes (Aguilar, Sroufe, Egeland, and Carlson 2000; Moffitt et al. 1996; Roisman, Monahan, Campbell, Steinberg, and Cauffman 2010).

One recent finding has been in regards to the adolescence-limited (often operationalized as an “adolescence-onset”) group. Several studies have investigated whether or not individuals with this pattern of offending are distinct from other groups in terms of early risk factors, as predicted by Moffitt (1993; 1997). Some theorists argue that adolescent-onset offenders have some of the same characteristics as more chronic offenders that can affect them later in life, but perhaps to a lesser degree (Odgers, Moffitt, Broadbent, Dickson, Hancox, and Harnnington 2008; Roisman et al. 2010).

Life Course Perspectives on Racial/Ethnic and Gender Differences

Another important consideration in developing the theoretical background for the current study is acknowledging and considering unique influences for African American respondents. A major component of this project is to extend our knowledge of life-course processes and their effects on delinquent behavior by using an understudied population. Many studies of antisocial behavior from a developmental or life-course perspective, including those that use a taxonomic approach as well as others, have been conducted using all or mostly Caucasian populations. There is substantial reason to believe that the processes that predict offending may differ by race. As a result, there is a need to investigate these questions with more a more diverse group of samples.

Both official statistics and self-report studies demonstrate that African Americans report much higher levels of involvement in criminal acts and are much more likely to be arrested than White youth (Tittle and Paternoster 2000). The differences are especially striking for violent behavior. The homicide rate for African Americans 15-24 years of age is nine times higher than for European Americans (Gibbs 1998). Rates of incarceration are also significantly higher for African Americans (Pettit and Western 2004). Indeed, 20% of all African American males

compared to 3% of White males spend some time imprisoned during age 20-34 (Pettit and Western 2004), with long-term developmental consequences. In light of the fact that African Americans are at a much higher risk for committing crimes as well as being arrested and/or incarcerated as a result, there is a need to understand the etiology of this behavior.

In part as a result of the lack of empirical studies from this perspective using African American populations, there is a scarcity of theoretical predictions about antisocial behavior stemming from life-course theory that reference racial groups in particular. There are, however, theoretical reasons to believe that both the timing and experience of turning points as well as their effects may differ by social group such as race or ethnicity (Elder 1998). Both Sampson and Laub (1993) and Moffitt (1993) argue that individuals who persist in delinquency throughout life experience some form of “cumulative continuity”, wherein disadvantages experienced over the life course add together and are more consequential in total than each isolated incident may be on its own. Minorities experience a greater amount of disadvantage in a number of life domains. In particular, one aspect of interest for the current study is the role of perceived racial discrimination, because of the lack of work in this area with minority samples this experience has not been explored as a possible “turning point” for delinquency. Moffitt does make a specific argument as to why African Americans may be more likely to be life-course persisters: “Among poor blacks, prenatal care is less available, infant nutrition is poorer, and the incidence of fetal exposure to toxic and infectious agents is greater, placing infants at high risk for the nervous system problems that research has shown to interfere with prosocial child development. To the extent that family bonds have been loosened and poor black parents are under stress, high-risk infants should tend to develop the weak attachment bonds that research has shown to predispose to aggressive interpersonal behavior. To the extent that poor black children attend disadvantaged

schools, there is less chance for corrections of the learning disabilities that research has shown to contribute toward underemployment and recidivistic crime. Thus, for poor black children, the snowball of cumulative continuity is anticipated to begin rolling earlier, and it rolls faster downhill (1994: 38-39).”

There is substantial support also that the processes leading to offending may be different for males vs. females (Giordano, Cernkovich, and Rudolph 2002; Heimer and De Coster 1999). Moffitt (1994) hypothesized the existence of two distinct groups of offenders, life-course persistent and adolescent-limited. However, she also argued that females be less likely to be delinquent in relation to males and that a higher proportion of males would become life-course persistent. She posits that the indicators of being in either of these groups of offenders are similar, even if the proportions in relation to the population of each gender group are different (Moffitt 2003). Silverthorn and Frick (1999) used this as a background, but argue a revision to Moffitt’s theory that includes the addition of a delayed-onset pattern among girls. They argue that females who show a late onset of antisocial behavior are similar to early onset boys, and that there is no real counterpart among females to the adolescent onset group seen among males. Their theoretical addition was tested by White and Piquero (2004), who found mixed results. Females in their sample who displayed a late onset of delinquent behavior were very similar to males who showed early onset. However, they also found the presence of an early onset group in both gender samples, and these comparisons showed that females fared worse on about half of the risk factors considered.

There is considerable debate in criminology about the utility of gendered theories of crime. A substantial amount of criminological research shows that offending rates for men and women differ, with males committing more (and more serious) crimes than females. However,

the majority of criminological research does not address specifically why this is true or explore in depth what mechanisms might be causing this disparity. Instead, researchers use gender as a control variable, assuming that it will significantly affect their analyses, but without making any statements about why or how this effect occurs. Theoretically, some scholars argue for the development of new theories to explain women's criminality in light of the male-centered field that developed the predominant theories used today (Chesney-Lind and Pasko 2004; Steffensmeier and Allan 1996). Even given this bias in theory formation, there are still valuable ideas within commonly used criminological theories that can be extended to understand gender differences in offending. Some researchers believe that it is useful to think of women's crime by using existing theory, understanding that although the process may operate in the same way, the components are qualitatively different (Broidy and Agnew 1997; Heimer and De Coster 1999; Piquero and Sealock 2004). The current study takes this approach and uses an existing criminological theory to understand differences in the causes of delinquency for males and females.

Summary

The LCT paradigm and perspectives from both Sampson and Laub (Laub and Sampson 2003; 1993) and Moffitt (Moffitt 1993; Moffitt 1997) and colleagues make up the theoretical backdrop for the current study. I take a developmental approach and argue that patterns of offending from young adolescence to early adulthood can be understood by stable family and personal circumstances as well as important life events that occur throughout this time period. I improve upon previous research by bringing together the taxonomic ideas from Moffitt's (1993) work and the developmental age-graded informal social control ideas of Sampson and Laub (1993), all with a sample of African American adolescents. The goal is to uncover how early

characteristics like family structure, as well as important turning points such as experiencing the death of a loved one or a violent victimization, can influence patterns of offending through adolescence.

CHAPTER 3

Literature Review

While age-graded informal social control was introduced nearly twenty years ago, there have been few formal tests of the theory. Furthermore, many have questioned the historical and cultural specificity of Sampson and Laub's sample (Giordano, Cernkovich, and Rudolph 2002) as being too narrow and therefore lacking generalizability to a wider population. Their analysis focuses on a sample of white males growing up in the 1950s, which likely influences the results. Other researchers have identified a number of important predictors of offending trajectory and turning points that influence this pattern of behavior. As mentioned above, a number of classification taxonomies are used in these empirical tests, but they all represent investigations of longitudinal patterns of behavior that are informed by the life course paradigm.

Research Identifying Trajectory Groups

One of the most commonly used taxonomies is Moffitt's (1993; 1997) adolescent-limited vs. life-course persistent dichotomy. As discussed above, she argues that these two categories distinguish between those who persist in crime after their teenage years. A number of researchers have used this framework and several important differences have been identified between individuals in each group. One important characteristic of the more chronic offenders is a greater likelihood of beginning their delinquency at an early age, as well as showing more severe and aggressive behaviors (Moffitt, Caspi, Harrington, and Milne 2002; Woodward, Fergusson, and Horwood 2002). Dandreaux and Frick (2009) investigated distinctions between childhood- and adolescent-onset delinquents using two samples of pre-adjudicated boys, one

identified as childhood-onset and the other as adolescent-onset. They found that those in the childhood-onset group showed more severe aggression, had higher levels of family dysfunction, and displayed higher rates of callous-unemotional traits. In addition, they found that those in the adolescent-onset group showed lower levels of traditionalism or support for traditional values.

Others have identified trajectory groups within various samples, but without focusing on just these two types of offenders. Much of this research has found that there are more than two distinct groups of offenders, regardless of the particular characteristics of the sample (Bongers, Koot, van der Ende, and Verhulst 2004). Piquero and colleagues (2010) used the Cambridge Study in Delinquent Development data to identify trajectories of criminal offending. They were interested in investigating whether an individual's membership in these trajectory groups affected their likelihood of "life failure" at later ages, while controlling for early environmental and individual risk factors. The sample contained 411 South London males. They identified five trajectory groups and found that the patterns of offending predicted life failure at later ages net of the effect of early risk factors. Chronic offenders were more likely to experience outcomes such as heavy drug use and more convictions than lower rate offenders, non-offenders, and adolescent-peak offenders.

Using the same data set described above, Farrington, Ttofi, and Coid (2009) also investigated four categories of offenders: nonoffenders, adolescence-limited offenders, late-onset offenders, and persistent offenders. They were interested in a wide variety of family, school, socioeconomic, individual, and behavioral factors. Overall, results supported the view that persistent offenders fared the worst in terms of most risk factors compared to the other groups.

Bersani, Nieuwbeerta, and Laub (2009) also investigated trajectories of offending over the life course using a sample of convicted criminal offenders in the Netherlands. While they do

find some significant differences in individual characteristics across trajectory group, there is no consistent pattern of factors that distinguishes individuals' offending pattern. Overall they had weak predictive power for assigning individuals to a trajectory group; however their number of adolescent risk factors was limited and offending was based on official conviction records.

Although less research has been conducted using African American samples to investigate life-course processes, there are some notable exceptions. However, all of these studies have relied upon data from urban inner-city populations; it is still unclear whether the factors important for understanding delinquency within a rural or suburban African American population are the same. Piquero and White (2003) investigated the effect of cognitive abilities on possessing characteristics identified by Moffitt (1993) as more prevalent among life-course persistent offenders using an African American sample. They found that increased cognitive abilities negatively affected one's likelihood of being a life-course persistent offender. The identification of an individual as a life-course persistent offender in this study was based upon criteria specified by Moffitt (1993) as hallmarks of this type of offender. While the results provide insight into developmental processes, classifying individuals into groups of offenders based on subjective criteria may be problematic (Nagin 1999).

Park and colleagues (Park, Lee, Bolland, Vazsonyi, and Sun 2008; Park, Lee, Sun, Vazsonyi, and Bolland 2010) have conducted two studies identifying trajectory groups with Growth Mixture Modeling (Muthen and Muthen 1997-2008) and using the Mobile Youth Survey, an inner-city African American population. They found the presence of three distinct groups of offenders, including a "steady" (but low-level) group displaying little delinquency, an "incremental" group showing a stable increase in delinquency over time, and a "high starter" group that begin with a high level of delinquency but declined over time. Comparisons of these

three groups indicated that the high starter and incremental group fared worse in terms of factors such as substance use, self-esteem, and parental monitoring (Park et al. 2008). In a follow-up study with the same sample, the same authors predicted membership in trajectory group with multivariate analyses. They found that similar factors of parental control, school suspension, and substance use predicted membership in the steady (low-level) group in relation to the incremental and high-starter group (Park et al. 2010).

Bradshaw and colleagues (Bradshaw, Schaeffer, Petras, and Ialongo 2010) identified trajectories of antisocial behavior using the same methodology as above and an urban sample of African Americans (from Baltimore); however, their intention was to predict the experience of later negative life outcomes. They hypothesized that individuals within two different types of “early starter” trajectories would be at a greater risk for these negative life events (such as substance use, dropping out of school, teen pregnancy, etc). Their results were supportive of this view for both boys and girls; membership in an early starter trajectory predicted the experience of a larger number of negative outcomes.

Previous Research on Turning Points

Desistance as described by Laub and Sampson (2003) was based upon research with small sample of Caucasian males living with a specific sociohistorical context; it remains to be seen whether this is generalizable to other populations. Others have attempted to replicate their results with a variety of study populations, although most still suffer from important limitations.

Parenting Factors. Parenting practices are one of the best known predictors of antisocial behavior in children (Simons, Simons, and Wallace 2004). Some have found that maltreatment occurring in adolescence more likely to increase offending than when it occurs at younger ages (Stewart, Livingston, and Dennison 2008). Similarly, Pires and Jenkins (2007) found that effects

of parental warmth and rejection on drug use differed based on the age of the respondent. Rejection was more influential for young adolescents (age 10) than warmth, while the opposite was true later in adolescence. They suggest that positive attributes of parent-child relationships such as warmth may inadvertently be interpreted by the child as approval for their behaviors, even if those behaviors are antisocial in nature.

A substantial amount of research has investigated the relationship between harsh discipline and behavioral outcomes (For reviews see (Gershoff 2002; Hicks-Pass 2009; Larzelere and Kuhn 2005; Paolucci and Violato 2004) . The relationship studied most prominently in this type of research is that between corporal punishment and antisocial behavior. Using indicators of antisocial behavior drawn from several different scaled measures, there is a large amount of empirical support that children who are physically punished by their parents show an increased level of antisocial behavior (Grogan-Kaylor 2004; Grogan-Kaylor 2005; McKee, Roland, Coffelt, Olson, Forehand, Massari, Jones, Gaffney, and Zens 2007; Simons, Wu, Lin, Gordon, and Conger 2000; Straus and Mouradian 1998; Straus, Sugarman, and Giles-Sims 1997).

Although disciplinary techniques are important in understanding the effects of parenting on childhood outcomes, other aspects of the parent-child relationship are consequential as well. Several scholars have argued “authoritative” parents raise the most prosocial children; this parenting style is characterized by support and nurturance but also a reasonable amount of control that includes setting rules and enforcing consequences for breaking those rules (Meteyer and Perry-Jenkins 2009; Simons, Simons, Burt, Brody, and Cutrona 2005). This type of parenting is associated with a number of positive outcomes for children, including psychological adjustment and school achievement (Simons, Simons, Chen, Brody, and Lin 2007; Simons, Simons, and Wallace 2004). Researchers point out however, that is not simply control that

fosters these positive outcomes, but control in a supportive and warm environment (Simons et al. 2000).

One element of authoritative parenting that is especially important is effective monitoring and supervision of a child's behavior. Parental monitoring/supervision have been shown in the past to be related to antisocial behavior among children and adolescents (Simons, Simons, and Wallace 2004). Individuals with parents who consistently know where and how they spend their time have fewer opportunities to engage in delinquency. Several recent studies have shown this connection, either in the form of authoritative/supportive parenting or a unique effect of limit-setting or supervision (Juon, Doherty, and Ensminger 2006; Kirk 2009; Meteyer and Perry-Jenkins 2009; Middleton, Scott, and Renk 2009). Other aspects of the primary caregivers' own behavior, such as their own level of antisocial behavior or mental health, may also impact patterns of offending for adolescents.

Family Transitions. In addition to these characteristics of parenting, scholars have also investigated the influence of family structure on childhood behavioral outcomes. The number of children who grow up in a household with both of their biological parents is quickly dwindling (Amato 2005). There is also substantial evidence that living in a family form that does not include both biological parents can put children more at risk for developing behavioral, emotional, and cognitive difficulties (Amato 2005; Simons, Simons, and Wallace 2004). As a result, a number of scholars have considered this issue. Some studies focus on the outcome of transitioning into a new family form, while others have been more concerned with examining the differences between family structures.

Results show in general that children in families with both biological parents have the most positive outcomes. Those in households with a stepparent or only one biological parent

tend to have more behavior problems in comparison (Apel and Kaukinen 2008; Cavanagh and Huston 2006; Simons, Chen, Simons, Brody, and Cutrona 2006a). There has also been a recent interest in the relative outcomes of cohabitating families, as this family form is increasing in prevalence (Amato 2005). In general, results are consistent and show that living with a cohabitating couple has a negative effect on behavior, although not necessarily as strong as the effect of living in a single-parent household (Amato 2005; Apel and Kaukinen 2008; Cavanagh and Huston 2006). Transitions into new family forms can represent an upsetting and disruptive time in a child's life, these transitions in general have been linked to increases in behavior problems (Magnuson and Berger 2009; Petts 2009). Two recent studies found that shifting into a single-mother household was associated with a higher level of antisocial behavior than shifting into a two-parent household (Langenkamp and Frisco 2008; Magnuson and Berger 2009).

Effects of transitions may also differ based on the type of change that occurs. For example, Juby and Farrington (2001) found that parental divorce was more important in predicting delinquency than parental death. Separation from a parent for any reason may negatively influence an adolescent's behavior, even if the degree to which this happens depends on the reason. Murray and Farrington (2005) investigated the effect of parental imprisonment on boys' antisocial behavior. They argue that imprisonment of a parent may be a particularly important risk factor for delinquency because of the example it may set for appropriate behavior. They found that parental imprisonment was a strong predictor of delinquent behavior over the life course, and that the effect of separation for this reason was more important than others in predicting antisocial and delinquent behavior.

Krohn, Hall, and Lizotte (2009), in contrast, found that the effect of family transitions differed by gender. The authors investigated the impact of family transitions on delinquency and

drug use both directly and indirectly through their effects on peer relationships and school performance. Results indicated that there were no direct or indirect effects of family transitions for females. However, number of family transitions directly influenced delinquency and indirectly through peer interactions for males.

Racial Discrimination. One focus of the current study is to explore effects of racial discrimination on delinquency patterns. Comparisons between African Americans and whites show higher rates of offending and victimization for African-Americans when using official statistics. In 2007, African-Americans represented about 13% of the population, but 39% of arrests for violent crime; whites make up 80% of the population and 59% of arrests for violent crime (Pastore and Maguire). When using self-report surveys the disparities are not always as large (Haynie and Payne 2006), leading to some disagreement among scholars about whether this represents a bias in the criminal justice system. Nevertheless, studies of race and crime usually focus on finding a way to account for disparities in offending and victimization rates between these two groups; one proposed explanation unique to minority populations is the influence of perceived racial discrimination. In part because of the lack of diverse samples in developmental studies, this form of stressor has been neglected in life-course work.

Given that the life-course body of research has been criticized for its cultural and/or historical specificity, there is a need to investigate how the experience of racial discrimination might contribute to our ability to distinguish between career criminals and others. Perceived racial discrimination has been linked to a number of negative outcomes among African American adolescents, including depression (Dubois, Burk-Braxton, Swenson, Tevendale, and Hardesty 2002; Simons, Murry, McLoyd, Lin, Cutrona, and Conger 2002), physical health problems (Williams and Mohammed 2009), anger (Simons, Chen, Stewart, and Brody 2003;

Simons, Simons, Burt, Drummond, Stewart, Brody, Gibbons, and Cutrona 2006b), as well as other forms of externalizing behaviors such as delinquency (Burt 2009; Simons et al. 2006b).

Deviant Peers. One strongly supported correlate of delinquent behavior is contact with delinquent peers. The effect of deviant peer networks in fostering delinquency has been frequently studied in criminology (Warr 2002), with most researchers taking one of two viewpoints. The first, endorsed by Gottfredson and Hirschi (1990), is that individuals seek out friends who are similar to themselves, so they “self-select” into deviant peer groups. The other argues that individuals learn to be deviant partially through their peer networks, so associating with antisocial others exacerbates or teaches some individuals to be deviant who would otherwise be conventional (Akers and Sellers 2009). Regardless the process by which it happens, peers influence each other to engage in both deviant and conventional behaviors. A number of studies find that spending time with others who are delinquent contributes to an individual’s delinquent behavior even after controlling for background characteristics including self-control (Button, Corley, Rhee, Hewitt, Young, and Stallings 2007; Matsueda and Anderson 1998; Miller, Loeber, and Hipwell 2009).

Employment. While some researchers find no real effect of employment on delinquency after controlling for differences between workers and non-workers (Apel, Bushway, Brame, Haviland, Nagin, and Paternoster 2007); these authors did find one positive effect for group of adolescents who are at risk for antisocial behavior at an early age. Savolainen (2009) investigated the effects of work along with parenthood, marriage, and cohabitation on desistance using a sample from Finland. This study found effects for a number of the variables of interest, but the strongest predictor of criminal desistance in this sample was the transition from joblessness to work. In addition, employment status explained some of the family effects,

leading to unclear causal conclusions – either getting a job encourages individuals to form unions with pro-social partners, or having relationships with pro-social family members helps in the transition to the labor market.

Romantic Relationships. One of the most often studied and perhaps most influential turning points in life is entering into the institution of marriage. Some scholars focus on committed romantic relationships rather than the legal institution of marriage in particular. Research has produced widely varying results, with some claiming a direct and substantial reduction in offending as a result of marrying (Sampson, Laub, and Wimer 2006) and others arguing for no effect at all (Giordano, Cernkovich, and Rudolph 2002). Sampson and Laub's (1993) theory is most often used to describe this effect. The bond of marriage is arguably a young adult's most important and influential bond to the greater society, and individuals who jeopardize this relationship by engaging in criminal activity put their greater place in the social order at risk. The principle of life-course theory emphasizing the importance of historical and cultural specificity is particularly relevant within the investigation of marriage and crime. Giordano and colleagues argue that the effect shown in some articles (most notably (Sampson, Laub, and Wimer 2006)) is a result of the cultural and historical context; more contemporary studies show mixed results.

In light of these mixed results, many scholars argue that it is not the presence of an intimate partner or spouse that is most important, but the quality of that relationship (Nagin, Farrington, and Moffitt 1995; Sampson and Laub 1990; Simons, Stewart, Gordon, Conger, and Elder 2002). Aspects of the relationship assessed in these studies included characteristics such as attachment to spouse, intimacy, and companionship. Given that the individuals in the current study are teenagers, effects of an intimate relationship may be weaker or more fleeting than those

of a more mature adult. Interestingly, one study has shown that having extended experience with relationships from a young age (as compared to those who form these relationship later, or never) was associated with an increase in delinquency (Meeus, Branje, and Overbeek 2004). In addition, these researchers found that increased partner support was associated with less delinquency.

King, Massoglia, and Macmillan (2007) investigated the effect of marriage on crime using a propensity score matching framework. They were interested in possible direct effects, as well as differential effects of gender and potential differences based on an individual's propensity to marry. Using data from the National Youth Survey, the authors find partial support for their hypotheses. Males with lower propensities to marry were affected slightly more by marriage; but marriage was less influential for females overall. Among females with a moderate propensity to marry, those that were unmarried had significantly higher rates of offending. The authors argue that females may experience less of an effect of marriage on crime because of their lower propensity to offend overall.

Bersani, Laub, and Nieuwbeerta (2009), using the same sample of convicted individuals from the Netherlands described above, also investigated the effect of marriage on crime; in particular they were interested in the changing impact of gender and historical context. The authors compared the effects of marriage on crime and results indicated that marriage was consistently associated with a reduction in crime, but that the impact was even greater within a contemporary context.

Contact with law enforcement. Another important event that can influence offending is contact with law enforcement, whether a formal arrest or not. Arrest or conviction is a well known and supported predictor of future offending (Krohn, Thornberry, Rivera, and LeBlanc

2001; Snyder 2001), but in a small community even the stigma associated with getting into trouble with police may still be important. Sampson and Laub (1997) argue the effect of contact with law enforcement may happen indirectly, by negatively influencing later job prospects.

Cognitive Abilities. One characteristic identified by Moffitt (1993; Moffitt 1997) as a feature that can distinguish between life-course persistent and adolescent-limited offenders are cognitive abilities. Results are somewhat mixed, with some indicating a link between cognitive deficits and delinquency, including low IQ (Wolfgang, Figlio, and Sellin 1972) as well as other neuropsychological measures (Donnellan, Ge, and Wenk 2000; Moffitt and Silva 1988; Piquero 2001; Piquero and White 2003). Excelling in school can be one manifestation of greater cognitive abilities that can serve to buffer adolescents from pursuing criminal activity past common teenage delinquency.

Victimization. Although the link between offending and victimization is also well supported empirically (Lauritsen and Laub 2007), the theoretical reasons behind this link and the causal direction are both less clear (Ousey, Wilcox, and Fisher 2011). A number of studies have found that experiencing victimization exacerbates future offending behaviors (Cullen, Unnever, Hartman, Turner, and Agnew 2008; Daigle, Cullen, and Wright 2007; Hay and Evans 2006).

These as well as other life events may be important in predicting delinquency among adolescents. Some events, such as a residential move or the death of a friend, may be less consequential to adults but have a more lasting impact on children or adolescents (Dunn 1988). These represent changes in life that could potentially have a large impact on one's life at any age, but may be more consequential in affecting behavior among a younger population with less developed reasoning skills and coping mechanisms (Hoffman and Cerbone 1999).

Research Questions and Hypotheses

Drawing from the literature described above and informed by the theoretical tenets of both LCT and informal social control theory, the main research questions to be answered in this study are as follows: (1) how many trajectories are present in this rural/suburban sample of African American adolescents, within males and females? (2) what do these trajectories indicate about patterns of offending? (3) can early personal characteristics and the experience of life events (“turning points” as identified by previous research) distinguish between trajectory-group membership?

As discussed above, a number of studies point to the fact that these processes may differ by race (Schroeder, Bulanda, Giordano, and Cernkovich 2010; Simons et al. 2007). Most prior research investigating trajectories of offending has been undertaken with predominantly white samples (Gorman-Smith, Tolan, Loeber, and Henry 1998; Loeber, Stouthamer-Loeber, van Kammen, and Farrington 1991; Loeber et al. 1993; Piquero, Farrington, Nagin, and Moffitt 2010). This study seeks to expand our knowledge of offending trajectories by investigating a rural and suburban African American population.

In addition, analyses are run separately for males and females. Several studies show that males commit more delinquent acts than females (Heimer and De Coster 1999; Schwartz and Rookey 2008; Steffensmeier, Schwartz, Zhong, and Ackerman 2005). Many previous studies on trajectories of offending and predictors of life-course patterns have been limited to only investigating males (Murray and Farrington 2005; Piquero, Farrington, Nagin, and Moffitt 2010) or have used gender as a control variable. I improve upon these previous studies by splitting the sample and investigating possible differences in the effects of various independent variables within each gender group.

The last goal of the analysis is to investigate whether or not trajectory group membership can be predicted by a number of family/individual factors and the experience of important turning points throughout adolescence. There are two main components of this part of the analysis. The first is to understand the prediction of onset of behavior by including a set of variables measured before adolescence. Several important predictors of delinquency at earlier ages are also included. Some studies have shown that parenting at the beginning of adolescence is more important than changes that occur during the teenage years (Simons, Chao, Conger, and Elder 2001 ; Thornberry 1989). Based on this, I use a measure of authoritative parenting (a composite of warmth, hostility, and monitoring) measured at wave 1, when the respondents are about age 10. Other structural aspects such as socioeconomic class and living in a single parent household are also included.

The second component is to assess how changes in these variables, as well as the experience cumulative disadvantages in the form of life events identified as turning points as well as cumulative effects of early predictors can explain why patterns of behavior between these groups are different over time. Life events include experiences such as family transitions, victimization, and the death of a close relative or friend. The goal of this second set of variables is to capture the first effects of these turning points on significant changes in offending as these individuals are reaching the end of their adolescence. It is assumed, based upon prior research, that this is the time of life when most adolescents form more lasting patterns of behavior as they begin transitioning into their lives as adults.

Because of the lack of literature using similar samples, I do not hypothesize the specific number of trajectory groups that are expected to be found, but consider this part of the analysis more exploratory. It is expected that there will be multiple groups of individuals with similar

patterns of offending; and based on the research cited above I expect to find at least three groups. In addition, based on research specifically investigating African American populations, I expect to find the existence of a late-onset delinquent group. While the percentage of high-rate offenders may be smaller within the female sample, it is not necessarily expected that the number and type of trajectory groups will differ by gender.

In terms of the turning points of interest, I expect to find effects similar to the research described above. As described in the first chapter, one of the main goals of this study is to investigate whether or not early predictors and/or later life experiences can distinguish between individuals who only engage in adolescent delinquency and those who persist through adulthood. I hypothesize that early measures of negative life events as well as characteristics of parent and peer relationships will significantly predict trajectory group membership and therefore, also the “starting point” of delinquency.

Secondly, the focus of the analysis will be on changes in patterns of delinquency in adolescence. This portion of analysis centers on the contrast between trajectory groups that are similar at one time point but diverge, as well as those that begin at very different levels but converge. I hypothesize that changes in experiences such as racial discrimination, authoritative parenting, and interactions with delinquent friends can help explain escalation or desistance. I also expect that experiencing a larger number of negative life events (i.e. more family transitions, more residential moves) will also increase an individuals’ likelihood of belonging to a trajectory group that shows an increase in delinquency. The cumulative number of experiences of each turning point will help to explain changes in delinquency over time.

In terms of gender differences, I expect that males will consistently show higher rates of offending than females. I also predict that several variables will have stronger effects for one

gender group. I hypothesize that authoritative parenting and the death of a relative or friend will be more influential for females than for males in predicting changes in delinquency. There is some evidence that family relationships may be more influential for females' behavior than males. I also expect that delinquent friends and changes in racial discrimination will be a better predictor of trajectory group membership for males than for females.

CHAPTER 4

Data and Methods

Data

Sample. Data for the current study is drawn from waves 1 – 4 of the Family and Community Health Survey (FACHS). Beginning in the 1990s, FACHS is a project designed to investigate the family and community effects on development of African-American children in two different locations, Iowa and Georgia. Now in its sixth wave of data collection, this dataset contains a large amount of information concerning the growth and development of respondents, their primary and secondary caregivers, and a sibling. A particular strength of this sample is the ability to isolate individual and neighborhood effects, due to the nested nature of the data. Each family in the study is nested with a census block group, although this portion of the data is not used for the current study (Simons, Kuei-Hsiu, Gordon, Brody, Murry, and Conger 2002).

Recruitment in Iowa began with identifying families in the public school system that had an eligible child; all families lived in one of two geographic areas. In Georgia, respondents came from several different areas within the state. In each area community members were hired as liaisons between the researchers and the larger community. These individuals combined rosters of eligible families based on their personal knowledge and information from several different sources, including schools, youth groups, and churches. In both locations, families with an eligible child were randomly selected from the rosters and first contacted by telephone. If they were unable to be reached by telephone a face-to-face contact was attempted. Those families that refused to participate were removed from the rosters and a new family was contacted until the required number from each block group was reached (Simons et al. 2005).

The first wave of the FACHS data were collected in 1997 from 867 black, fifth-grade children (400 boys and 467 girls; 462 from Iowa and 406 from Georgia). Primary caregivers' mean age was 37 (range 23 to 80 years), 93% were female, 84% were the target's biological mothers, and 44% identified themselves as single parents. Their educational backgrounds were diverse, ranging from less than a high school diploma (19%) to a bachelor's or advanced degree (9%).

The second, third, and fourth waves of data were collected in 1999-2000, 2001-2002, and 2003-2004 to capture information when most of the target children were ages 12-13, 15-16, and 18-20, respectively. Of the 897 families, 779 remained in the panel at Wave 2 (87% retained); 767 were interviewed at Wave 3 (86% of the original sample retained); and 714 were retained at Wave 4 (80% of the original sample).

Analyses comparing those families that did not participate in waves 2 or 3 did not differ significantly from those that participated with regard to youths' age, sex, or participation in delinquency or primary caregivers' education, household income, or neighborhood characteristics. Respondents who dropped out after the third wave, however, differed in a few ways from those in the first 3 waves. A higher percentage of those interviewed at wave 4 were female, and, not surprisingly, engaged in slightly less delinquency (diff = -.51, $t = -1.97$) on average than those not re-interviewed at Wave 4. A greater proportion of the families that did not participate at wave 4 had lower household incomes on average than those in the sample. No differences between those remaining in the panel and those dropping out with regard to community measures, family structure, or parenting practices.

Methodology

The statistical methods employed for this study are both a group-based trajectory model (GBTM) and multinomial logistic regression models. Nagin and colleagues have completed a number of analyses refining the use of these models (Nagin 1999; Nagin 2005; Nagin and Land 1993) for describing patterns in behavior over an extended time period. Along with Moffitt's theoretical contributions (Moffitt 1993; Moffitt 2003; Moffitt 2006), methodological advances have also influenced the work in this area. Nagin and Piquero argue "GBTM is specifically and statistically designed to examine processes that evolve over age or time (2010: 107)". While considerable debate exists over the utility of this methodology (Nagin and Tremblay 2005a; Nagin and Tremblay 2005b; Sampson and Laub 2005); many prominent researchers have employed GBTM to investigate criminal offending over long periods of time. A recent review (Piquero 2008) found that this methodology has been used across a wide variety of disciplines, including over 80 different studies regarding delinquent or antisocial behavior.

GBTM allows for the statistical identification of significant subgroups of individuals within a longitudinal dataset, but also allows the researcher to identify both time-invariant and time-variant factors that distinguish one's probability of belonging to a particular trajectory group. This type of model has several features that make it especially useful for studying trajectories of delinquent or criminal behaviors. It is versatile by allowing for several different estimators, allowing researchers to use a variety of indicators of behavior regardless of how they are measured. This model can estimate trajectories using a censored normal, Poisson, zero-inflated Poisson, and Bernoulli estimators. In addition, when using the Poisson or zero-inflated Poisson model, the estimation is able to take into account times of non-offending. Lastly, the GBTM is able to classify individuals into a particular trajectory group based upon statistical

criteria rather than an objective measure identified by the researcher (such as early onset) (Piquero 2008).

Although two other methodologies – latent curve analysis (Willett and Sayer 1994) and hierarchical linear modeling (Byrk and Raudenbush 1992) are designed to look at trajectories of development over time, both of these models are designed to describe how individuals differ from the mean path, rather than identify distinctive groups. GBTM uses a multinomial strategy that allows for the identification of categorical groups; but without the use of subjective criteria to determine these groups. Nagin states “the modeling strategy explicitly recognizes uncertainty in group membership, allows an examination of the impact of multiple factors on probability of group membership, and anoints no set of factors as necessary and sufficient in determining group membership (1999: 140).” There is a long history of research on distinct groups in criminology, from Cloward and Ohlin’s (1960) investigation of multiple delinquent subcultures up to the more recent, but very influential two-group model of Moffitt’s mentioned above (Moffitt 1993).

Perhaps the most important distinction between GBTM and these other methodologies is the underlying assumption about the behavior as it is distributed among the sample. Both hierarchical linear and latent growth curve models assume that individuals are developing along the same basic pathway and that individuals may vary around that mean, as a result the outcome is treated as a continuous distribution (Raudenbush 2001). While some behaviors may follow this type of similar pathway for most individuals, there is substantial support that criminal behavior does not. The GBTM “approximates [a] continuous distribution with points of support, or groups (Piquero 2008: 30).”

As mentioned above, a common and problematic issue that most of these taxonomy-based theories have in common is the use of subjective criteria to assign individuals to a specific

group. For example, a well-known correlate of lifelong criminal offending is an early onset. However, not all individuals who start offending early continue on throughout their life; so while this characteristic may be an accurate predictor most of the time, if we as researchers use it to identify those at risk for becoming career criminals, we run the risk of mis-identifying a large group of people. Using an empirical method such as GBTM protects against making this mistake, by taking into account this correlation but also using other information to identify groups with common offending patterns (Nagin 1999).

Analytic Strategy. The current study involves several parts. The first focuses on describing the type and number of trajectory groups for the FACHS data. Analyses were conducted using Stata 10 (StataCorp 2009) and the “Proc Traj” add on for SAS developed by Nagin and Jones (Jones and Nagin 2007; Jones, Nagin, and Roeder 2001). The first stage of analysis consisted of identifying the appropriate number of trajectory groups based on theory and empirical results. The model utilized for this study is a group-based trajectory model (GBTM), also referred to as a semi-parametric model (Nagin 1999; Nagin 2005; Nagin and Land 1993). As described above, this methodology is specifically suited for investigating processes that evolve over time, specifically those that have distinct trajectories for different groups of individuals. Nagin argues that GBTM “...assumes that there may be clusters or groupings of distinctive developmental trajectories that themselves may reflect distinctive etiologies...the groups should not be thought as literally distinct entities. Rather they serve as a statistical approximation to a more complex underlying reality (2005: 5).”

Identifying the Groups – Model Selection. The first step in a GBTM is to identify the appropriate model based on the sample. There are several issues to consider in this process, both in terms of empirical and theoretical rationale. Both the correct number of groups and the

correct polynomial term for each group must be determined. Because the models in question are not nested within one another, the likelihood ratio test is not appropriate for model selection. Use of the Bayesian Information Criterion (BIC) is recommended by several researchers (D'Unger, Land, McCall, and Nagin 1998; Nagin 2005) along with theory to establish the most accurate number of groups for our sample. While this provides a degree of statistical objectivity in choosing the right model, choosing between two options can sometimes require the researcher to base the final decision on knowledge of the problem and relevant theory. The BIC favors parsimony, and as such may show slight improvements in the value without a meaningful substantive difference between the two models in question; as a result Nagin (1999) argues that the use of theoretical knowledge is important for making the final model selection. Following the instruction of Nagin (1999), first the number of groups is identified, and then the correct polynomial for each trajectory group is chosen.

Group Profiles. After estimating the best-fitting GBTM, Nagin suggests the creation of “profiles” of each offender group, to help “characterize their life circumstances (2005: 82).” He argues that a summary of relevant characteristics and how they differ based on the trajectory group assignment can be useful for several reasons. First, it allows the researcher and others to easily see differences across groups (granted, this is only at the bivariate level). Secondly, it can also provide some support for model identification by showing concrete differences across the trajectory groups previously identified. While these analyses represent bivariate differences between groups, it can provide a useful picture of each group of individuals, and lend support for the final step of the analysis, which is to include these variables within a multivariate analysis.

Multivariate Analyses. The second major part of the analyses consisted of estimating multinomial logistic regression models for each gender group. These models included both an

early measure of each characteristic/turning point of interest, as well as a composite measure of later experiences of each variable beyond the baseline. The dependent variable is the “group” variable as identified by the GBTM that was identified in the first step of analysis. The result is a multivariate model that estimates the impact of both early predictors of antisocial behavior, as well as the effect of change in these predictors throughout adolescence; and how they affect one’s pattern of behavior over this time period (as measured by trajectory group).

Missing Data. In order to be assigned to a trajectory group, respondents were required to have a valid measurement of at least three out of the four possible waves. This constrained the analysis sample to 354 males and 427 females. Within this sample approximately 14% of males and 10% of females had at least one item missing from the list of independent variables. In order to utilize the most data possible, these missing items were replaced by substituting the mean value within each trajectory group. This imputation strategy was based on upon Nagin’s (2005) argument that one of the underlying assumptions of the GBT methodology is that individuals within each group are similar to one another. Eliminating these cases by using listwise deletion would have significantly impacted the cell sizes within the smaller groups and would have made statistical significance very difficult to detect. Analyses conducted without the imputed portion of the data indicated a similar pattern of results in terms of the direction, but with fewer statistically significant effects.

Measures

Each measure used in the current study is described below. Additionally, items for each individual scaled measure can be found in Appendix A. While examples of the types of questions are included in the section below, the full scales are included in the appendix for reference.

Dependent Variable – Delinquency. This construct was measured using youth self-reports on the conduct disorder section of the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV). The DISC-IV corresponds to symptoms listed in the Diagnostic and Statistical Manual-IV (Association 1994). The DISC was developed over a 15-year period of research on thousands of youths and parents and has demonstrated reliability and validity (Schaffer, Schwab-Stone, Fisher, Cohen, Piacentini, Davies, Conners, and Regier 1993). The conduct disorder section contains a series of questions regarding how often during the preceding year the respondent engaged in 26 antisocial acts such as shoplifting, physical assault, setting fires, cruelty to animals, vandalism, burglary, and robbery. Coefficient alpha for each wave were as follows: wave 1, .78; wave 2, .59; wave 3, .67; wave 4, .44.

Independent Variables – Continuous Variables. As mentioned above, each construct or event of interest is measured at two different time points; with the exception of the measurement of socio-economic class. The first measurement is taken from wave 1 to allow for proper temporal ordering (Nagin 1999). The effect of these variables estimates how important each is in understanding a respondents' "starting point" of delinquency. For the continuous variables, the second measurement consists of a "change measure", constructed using the wave 1 variable subtracted from a standardized summary of this variable at waves 2, 3, and 4. The effects of these measurements provide an estimate of how change through adolescence affects one's pattern of behavior.

Class. The measure of class is composed from the primary caregivers' report of their occupation and household income (Billingsley 1992). It is a categorical measure with five categories: '1' = nonworking poor; '2' = working-class poor; '3' = working-class non poor; '4' = middle class; and '5' = upper class.

Parenting. Authoritative parenting is a composite measure including several aspects of parental behavior. These include measurements of supervision and monitoring, which may exert important influences on the level of delinquency for an adolescent, particularly at younger ages (Kirk 2009). The monitoring portion is assessed by four questions (as reported by the target) asking questions such as “how often does your primary caregiver know what you are doing after school?” and “...know when if you do something wrong?” In addition, parental warmth is included in this measure by asking respondents questions such as “how often did your primary caregiver listen carefully to your point of view?” and “how often did your primary caregiver act loving and affectionate toward you?” There are nine questions regarding warmth; responses ranged from “1 = Never” to “4 = Always”. The last component of authoritative parenting consists of questions regarding physical punishment and emotional hostility. The two physical punishment questions asked respondents “When you do something wrong, how often does your primary caregiver spank you?”, and “...hit you with a belt, paddle, or something else?” Seven emotional hostility questions references verbal and emotional behaviors, asking respondents questions such as “During the past 12 months, how often did your primary caregiver shout or yell at you because they were mad at you?”, “...threaten to hurt you physically?”, “...insult or swear at you?” The hostility items for this scale were reverse-coded, so that higher values on the summated scale indicate higher levels of authoritative parenting. The reliability coefficient for this scale .81 at wave 1 and .91 for the composite measure of waves 2, 3, and 4.

Deviant Peers. A substantial amount of research indicates that delinquent activity of peers is an important predictor of one’s own delinquent behavior. I include a measurement of deviant peers that consists of 16 questions asked to the respondent about the behavior of their close friends in the last 12 months. Questions include “How many of your close friends

have...damaged or destroyed property that did not belong to them?; stolen something worth more than \$25?; hit someone with the idea of hurting them?” Response categories are “none of them”, “some of them”, or “all of them”. As for the parenting measure, the wave 1 measure is a standardized sum of all questions asked at wave 1, and the later measure is a standardized sum of waves 2, 3, and 4. Coefficient alpha was .87 for wave 1 and .86 for the later measure.

Racial Discrimination. This measure consists of 13 questions taken from the Schedule of Racist Events (Landrine and Klonoff 1996). This scale assesses the frequency one experiences various forms of racial discrimination, and has been used in many studies of African Americans (Landrine and Klonoff 1999). Respondents were asked questions such as “How often has someone said something insulting to you just because of your race or ethnic background?”, “How often has someone ignored you or excluded you from some activity just because of your race or ethnic background?”, and “How often have you been treated unfairly just because of their race or ethnic background?” Response categories range from “1 = never” to “4 = frequently”. Coefficient alpha is .86 for the wave 1 measure and .93 for the composite measure of waves 2, 3, and 4.

Independent Variables – Life Events. A number of turning points are considered based on the past research described above. The factors identified as turning points are measured at two different time points, in the same way the continuous measures are. The wave 1 variable is a dichotomous indicator of whether each individual experienced this life event or not. The second variable is a standardized sum of how many subsequent times the respondent experienced this event at waves 2, 3 and 4.

Family Structure. Family structure is assessed by a wave 1 measure of whether or not the respondent resides in a single parent home. The later measure consists of the number of

family transitions experienced through waves 2, 3, and 4. Family transitions consist of whether or not family structure changed type from one wave to the next. The structure variable is a categorical variable including the categories “two-parent-biological family”, “married-stepparent or cohabiting”, or “single parent and others”.

Residential Moves. This variable consists of a wave 1 measure of whether or not the respondent changed residences in the past year. The later measure consists of a standardized sum of how many times the respondent moved residences in waves 2, 3, and 4. This question is asked of the target, and says “In the past 12 months, did you move to a different house?”

Close Deaths. This variable asks the respondent if they have experienced the death of a close relative or friend in the past year. The later measure consists of a standardized sum of how many times they have experienced this over the span of waves 2, 3 and 4.

Advanced Class. This variable represents an event that can act as a positive turning point. The question asks the primary caregiver of the respondent “Is (target child) in a special class for gifted students or students with special talents; for example, an enrichment or accelerated program?” The second variable consists of the sum of whether or not the respondent participated in an advanced class through waves 2 and 3 (wave 4 is not included because the question was not asked in this wave; many of the respondents had finished high school by this point).

Victimization. The target was asked to report on the victimization experience of themselves and close family/friends. The first measure is a dichotomous variable indicating whether or not the responded answered yes to at least one of two questions: “In the past 12 months...was a family member the victim of a violent crime?; were you the victim of a violent

crime?” The later measure is a standardized sum of how many times the respondent or a family member experienced victimization through waves 2, 3, and 4.

Descriptive Statistics

Tables 1a and 1b contain descriptive statistics for all variables used in the study. For the analyses presented below, standardized scales were used. These two tables contain raw values of the mean, standard deviation, and range for males and females, respectively. These values were calculated prior to creating the standardized scaled measures included for model estimation for multivariate results.

CHAPTER 5

Results

Identifying the Groups

The first step in the analysis was to identify the best-fitting model. While many use the BIC as a guide for choosing the best model, in some cases this statistic is less useful. The BIC is calculated by the following equation: $BIC = \log(L) - .5k \log(N)$, L represents the model's maximum likelihood, N is the sample size, and k is the number of parameters. In general, a larger BIC (or smaller negative number, as the value is always negative) represents a better-fitting model. Tables 2 and 3 contain BIC values for models ranging from two to seven groups for males and females, respectively. There are two BIC values included, one for the sample size of respondents, the other represents a BIC calculated based on the total number of assessments. As shown in the tables, for each additional group added to the model, the BIC value improves. One issue with using this statistical criterion to evaluate the best-fitting model is illustrated by these tables – in some cases the BIC tends to improve with the addition of more groups and will always pick the highest number, in these instances it is not the best factor to rely upon for model selection (Nagin 2005).

This is further illustrated by the last column in these two tables, which contains the “probability correct model”. This value is calculated using the following equation:

$$P_{correct} = \frac{L_{best}}{L_{total}}$$

(Nagin 1999: 147)

As indicated in tables 2 and 3, however, this criterion also points to the model with the largest number of groups. In other analyses not presented, this pattern of results appeared regardless of the maximum number of groups considered. Nagin (2005) suggests comparing the BIC across

models in most cases, but also argues there are times when it is not appropriate. He recommends the use of substantive knowledge on behalf of the researcher regarding the phenomena under study to choose the best model. Nagin says “For reasons of parsimony and comprehensibility, the fewer the groups the better. Yet limiting the model to too few groups may conceal features of the data that are theoretically or empirically important (2005: 75).” I follow his recommendation and consider the substantive meaning of several models with varying numbers of groups (between 3 and 6) to determine which one is the best-fitting.

Tables 4 and 5 contain the results from this exercise. Both tables show average levels of delinquency across waves for males and females, respectively. For males, I choose the four-group model as the best-fitting model. Based on the suggestions above, it is the most parsimonious while not compromising unique features of the data. There is one important difference between the three- and four-group models that is not found when comparing the four- to the five-group model – a new and different group appears in the former contrast. The group labeled as number 3 in both the four- and five-group models is not present in the models containing smaller numbers of groups. This group of individuals have low levels of delinquency at wave 1, but then begin to increase their delinquent involvement over time. In contrast, when one more group is added to the four-group model, it only appears to be a combination of individuals taken from groups 1, 3, and 4. The addition of this group does not have a substantive impact on the number and characterization of the groups.

I performed two other diagnostics to test for model fit, and the results for males are presented in Table 6. The “odds of correct classification” test is computed by comparing the ratio of the average predicted probability for group j divided by the estimated probability of correct classification based on random assignment (equation available on request). Higher

values indicate better assignment accuracy. This table contains average predicted probabilities of group assignment (Ave PP) and the odds of correct classification (OCC) for the three, four, five-, and six-group models. Nagin (2005) suggests that an adequate fitting model will have values of Ave PP above .7 for all groups, and OCC values over 5.0 for each group. As shown, each model fits within these criteria, with the exception of the OCC value for one group in all models. It is slightly lower than Nagin's guideline; I choose the model with the highest value of the OCC for this group. All groups have more than adequate values of Ave PP in this model as well.

The best-fitting model for females is also a four-group model. As with the models for males, the BIC is not as useful in determining which model to choose, Table 3 shows that similar to males, it increases with each addition of a new group and the "probability correct model" diagnostic always chooses the largest number of groups. The average value for delinquency across groups and by wave is shown in Table 5. When comparing the four- to the five-group model, there is not a significant change by adding an additional group, (the added group is a combination of individuals in groups 1 and 3). Further support for the choice of the four-group model is found in Table 7, which contains results from the Ave PP and OCC calculations for the female sample. While in comparison the four- and five-group model may appear to be similar in terms of their fit (with both only having one group with an OCC close to 5), there are no substantively interesting and meaningful insights gained by adding one more group. The change from the three- to four-group model increases the OCC for the group with the lowest value. As with the male sample, one group falls slightly below the threshold of 5.0 for the OCC, but the model chosen represents the best-fitting of the options. The decision to choose this model is

based upon Nagin's suggestion to "balance the objective of model parsimony with the objective of reporting the distinctive developmental patterns in the data (2005: 74)."

The second step in the model selection process is to determine the correct polynomial term for each trajectory, as outlined by Nagin (2005) the above analyses contain all quadratic trajectories. There are two main reasons for modifying the order of a trajectory – similar to the determination of the correct number of groups; this can be assessed empirically and theoretically. He argues that one should make changes to the order of trajectories if the standard errors for a parameter estimate are very large, as this may be an indication that fewer parameters are needed to describe this trajectory. In addition, the substantive theory regarding the outcome of interest should guide the determination of the order; several of the theories above (Moffitt 1997) suggest the presence of one group of adolescents with a high-level chronic trajectory of delinquency which would support the use of a 0 order polynomial for this group.

For males, the order of one trajectory group is modified. There is one group (labeled 3 in the four group model) that follows a clear linear trend upward across waves 1 – 4. This is further supported by the lack of significance for the quadratic term in the model results, and the large standard errors associated with this trajectory. When this trajectory was changed to follow a linear pattern, model fit improved. Using Jeffrey's scale of evidence for the Bayes factor (Nagin 1999), the model with one linear trajectory and all others quadratic is strongly supported over the four-group model with all quadratic trajectories.

For the female sample all trajectories remained quadratic. As predicted by several criminological theorists, there was a substantial group of individuals in the female sample that had almost zero offending throughout all four waves (group 1 in the four-group model for females). Although visually it appears that this trajectory may follow a 0 order path,

comparisons between this and a model with all quadratic trajectories provided strong support for the latter. The same results appeared when testing for a better fit by specifying a linear trajectory for group 2. In support of this, the coefficients for all pathways (with the exception of the intercept for group 4) are statistically significant. Several other permutations of the trajectories were estimated to assess model accuracy for both males and females, and results supported the above-described models. Figures 1 and 2 represent the final trajectory models for this study for males and females, respectively.

As shown in these figures, the patterns of offending for the groups in both the male and female sample are similar except for one trajectory group. The group that differs is labeled as group 3, “early starter/declinings” for males and “adolescent limited” for females. While the trajectory groups and their patterns are largely similar between the two samples, I still chose to keep the sample split by gender for the remainder of the analyses. This rationale behind this decision is two-fold. First, while the patterns are similar, they are not identical. As described above, for the male sample the best fitting model identified a linear pathway for group 2; in the female sample there was strong support that this pathway is actually quadratic. In addition, the shape of the trajectory for group 4 in both samples is similar, but the mean levels of delinquency are different. At wave 4, for example, males in this group engage in an average of 8.67 delinquent acts, but for females this estimate is 5.19. Similar differences are found within the low level offending group; for females the average level of delinquency is less than 1 for all time periods, while for males it is slightly above 1 at waves 2, 3, and 4.

Secondly, the basis for investigating males and females separately is not only about differences in the groups and their patterns. Perhaps the more interesting part of this analysis lies in the next step, which is to predict group membership based on a set of variables. There is also

strong theoretical backing and reasons to believe that processes leading to offending could be different for males and females. The second major part of the current study is to assess the impact of various life experiences and how they impact development of behavior over time. Regardless of the similarities in patterns within the trajectory groups, we may still find important differences in the predictors of group membership as it relates to gender. Based on these two factors, I chose to estimate multivariate models with the sample split by gender.

Males – Trajectory Groups

There are four groups in the best-fitting model for males (see Fig. 1). Group 1 represents “low level” delinquents; for males this group still increases their offending slightly through adolescence and represents about 40% of the sample. The “early starter/declining” group represents individuals that begin at a high level of offending but decrease gradually throughout waves 1 – 4, and contains about 23 % of the male sample. Group 3 is labeled “late starters” and represents 23 % of males; these adolescents begin with one of the lowest levels of offending but then sharply increase to have one of the highest average rates by wave 4. The final group is labeled as “chronic”, and represents the individuals with the highest levels of delinquency at almost every wave. In the male sample they begin around the same level (the difference between these intercepts is not statistically significant) as the early starter/declining group, but increase sharply and remain high over the entire observation period. This group contains about 13.5 % of the male sample.

Females – Trajectory Groups

For females the average level of offending remains below 1 for all waves in the low level delinquent group, and this group is a slightly smaller proportion of the sample (36%). Group 2 are labeled as “late starters” as in the male sample, and represent about 21 % of females. These

adolescents begin with one of the lowest levels of offending but increase sharply over time. The difference between these two intercepts is not statistically significant. The “adolescent limited” group is labeled as such because of their classic quadratic trajectory, and is made up of about 29% of females. These adolescents begin with a low level of offending which then peaks between waves 2 and 3, thereafter declining sharply as they appear to “age out” of crime. The last group is identified as “chronic”, and represents about 13% of females. These individuals show a similar pattern as the adolescent normal group, but have beginning and ending rates of offending that are substantially higher.

For ease of comparison, Figure 3 contains pathways for all four trajectory groups in both the male and female samples. This graph displays more clearly how the group’s patterns compare to one another, and also how the values for male delinquency (especially in the case of the chronic group) are higher. The low level and late starter groups show the most similarity in terms of both shape and magnitude, but males remain slightly higher than females with the exception of the third measurement for the late starters.

Group Profiles

The last set of analyses before moving to the multinomial regression results are contained in Tables 8 and 9. These tables show the “profiles” of each group. While they only represent mean differences across groups, it is a useful tool for narrowing down the most important factors that influence group membership. There are a number of important differences between trajectory groups that are apparent in this analysis. All independent variables described in the previous chapter are included. For variables that are not dichotomous, all scales were created by constructing a standardized scale. As a result, the absolute value of the number for a given respondent loses some of its substantive meaning (which is why some values are negative).

However, the utility of showing a table such as this is to make comparisons between groups. These tables represent bivariate differences and are intended only to provide a “picture” of how the groups compare to one another.

A number of interesting differences exist between the various trajectory groups. For both males and females, the chronic group shows a marked difference in several important dimensions. For example, about 33% of males in this group live in a single parent household at wave 1, which is surprisingly the lowest proportion of any trajectory group in the male sample. Both the early starter/declining and chronic groups have higher levels of deviant friends at wave 1 than the groups that begin with lower levels of delinquency. In addition, the chronic group has a substantially lower beginning level of authoritative parenting than others.

In terms of differences in the change over time, the chronic group and the late starter group show differences when compared to the others. The late starter group had the highest average number of family transitions (in addition to the highest percentage of single parents). This group also showed the largest increase in racial discrimination. The chronic group also had a high average increase in racial discrimination, and by far the largest increase in delinquent friends.

The magnitude of the numbers is smaller for females but differences are also apparent. In contrast to the male sample, the chronic female group had the highest proportion of single parent homes at wave 1 (65%). Females in the chronic group also reported the highest average levels of racial discrimination and delinquent peers. In addition, these females had a much lower average level of authoritative parenting than any other group. Violent victimization may be an important turning point in these adolescents’ lives, whether they experience it themselves or a close family

member is victimized; while there was very little victimization at wave 1, the chronic group showed the highest increase in victimization at later time points.

A number of other factors show interesting differences across trajectory group, as illustrated in these tables. As discussed above, these profiles providing an interesting overview of how the groups differ at the bivariate level. The subsequent analyses will examine these factors in a multivariate framework to test for the statistical significance of their importance.

Multinomial Logistic Regression Results

The results for the multivariate analyses can be found in tables 10a – 10d and 11a – 11d. Included in these tables are results for each comparison (each column represents the same model, but with a different base outcome group specified). The column on the left specifies the comparison group for each table. For ease of interpretation, odds-ratios are presented in these tables. Given that the independent variables have been standardized, these odds ratios indicate the effect that a one standard deviation increase in the independent variable has on the likelihood of belonging to a particular group. The following discussion will center on the most interesting comparisons between groups, but all other individual effects are included in these tables.

Males – Low Level vs. Late Starters. These groups follow similar patterns from about age 10 to 12, but then begin to diverge as they enter adolescence. By around age 19, the late starter group has substantially increased their level of delinquency to the second highest, while the low level group continues with very little delinquency. The results comparing these two groups to one another may help to disentangle this divergence. These results are shown in the third column and top row of table 10a. As class increases, the likelihood of being in the low level group vs. the late starter group decreases and is marginally significant (OR=.797; $p < .10$). Family transitions show a substantial and significant effect, indicating that the probability of

being in the low level group vs. the late starter group also decreases by 42% for a one standard deviation increase in family transitions (OR=.589; $p < .05$). For males, both measures of deviant peers are significant predictors of being in the low level vs. the late starter group. As the delinquency of peers increases, both at the baseline (OR=.86; $p < .001$) and as it increases through adolescence (OR=.893; $p < .001$), the likelihood of being in the low level vs. late starter group decreases.

The early measure of discrimination was not a significant predictor in this comparison, but change in discrimination throughout adolescence was. As discrimination increases, the probability of being in the low level vs. the late starter group decreases by about 4% (OR=.96; $p < .05$). The number of times one moves is also a significant predictor, experiencing more residential moves decreases the likelihood of being in the low level vs. late starter group; this effect is marginally significant (OR=.87; $p < .10$). Lastly, increased victimization results in a marginally significant decreased probability of being in the low level vs. late starter group (OR=.81; $p < .10$), even though the early measure of victimization is not significant.

Males – Early starter/declining vs. Chronic. The second comparison of interest is between the early starter/declining and chronic groups. This comparison can be seen in Table 10b. These two groups begin their delinquency at almost exactly the same level (the difference between these two intercepts is not statistically significant), but quickly split away from one another; the early starter/declining group maintains a relatively high rate of delinquency until the end of adolescence and then declines, but the chronic group continues to increase throughout the study period. As in the previous comparison, some of the variables of interest can explain this divergence in pathways.

Both measures of delinquent peers are also significant predictors of this comparison; as delinquent peer activity increases, both the baseline (OR=.91; $p < .01$) and measure of increasing delinquent peers (OR=.90; $P < .001$), the probability of being in the early starter/declining vs. chronic group decreases. Although these effects are not large, they are highly significant. Racial discrimination is also an important predictor of this comparison, as discrimination increases through adolescence, the likelihood of being in the early starter/declining vs. chronic group decreases by about 5% (OR=.95; $p < .05$).

Males – Late Starter vs. Early starter/declining. The last comparison is between the late starter and early starter/declining groups, most easily seen in Table 10c. As seen in Figure 1, these two groups actually cross one another at around age 16. The characteristics and turning points of interest may be able to help explain why the late starter group continues to increase their delinquency after this time point, but the early starter/declining group declines to one of the lowest levels. As the number of family transitions increases, the relative risk of being in the late starter vs. early starter/declining group increases by about 36%, but this effect is only marginally significant (OR=1.36; $p < .10$). Once again, both predictors of delinquent peers are statistically significant, however the early measure is only marginally so – indicating that for a one standard deviation increase in delinquent friends, the odds of being in the late starter vs. early starter/declining group increases by about .6% (OR=1.06; $p < .10$). For the later measure, as delinquent activity of friends increases over time, the relative risk of being in the late starter vs. early starter/declining group also increases slightly (OR=1.06; $p < .05$). Additionally, as discrimination increases above the baseline measure, the relative risk of being in the late starter vs. early starter/declining group increases by about .5% (OR=1.05; $p < .05$).

Overall, there are a number of significant predictors of group membership within the male sample. The most consistent predictors are delinquent friends and racial discrimination. In addition to the results reported above, victimization was also a significant predictor of membership in the low level group as compared to both the early starter/declining (OR=.79; $p < .05$) and late starter groups (OR=.81; $p < .05$).

Females – Low Level vs. Late Starter. The first comparison of interest for the female sample involves the same two groups discussed for the males, the low level group vs. the late starter group, located in Table 11a. Akin to the male sample, the late starter group began around age 10 similar to the low level group; the difference in these two intercepts is not statistically significant. However, through adolescence the late starter group increases their delinquency to end with the highest level by around age 19. There are a number of important predictors in the comparison of these two groups.

Once again, delinquency of peers is a significant predictor of group membership. As delinquency of friends increases, both the baseline measure (OR=.94; $p < .10$) and measure of change (OR=.91; $p < .001$), the probability of being in the low level group vs. the late starter group decreases. The early measure is only marginally significant, given that the intercepts are so close to one another this is perhaps not surprising. The early measure of discrimination is also marginally significant, as discrimination increases the likelihood of being in the low level vs. the late starter group decreases (OR=.96; $p < .10$). Parenting throughout adolescence is also important; as authoritative parenting increases above the measure at age 10, the probability of being in the low level vs. the late starter group increases by about 4% (OR=1.04; $p < .01$).

Both measures of residential moves are significant. Those females who move before age 10 have about a 66% lower probability of being in the low level vs. late starter group than those

who do not move (OR=.34; $p < .01$). In addition, the more residential moves one experiences decreases the likelihood of being in the low level vs. late starter group, this effect is marginally significant (OR=.87; $p < .10$). Lastly, as victimization experiences increase, the probability of being in the low level vs. late starter group decreases by 32% (OR=.68; $p < .001$). However, there were so few females that reported experiencing victimization before the first wave of data collection that the baseline control measure could not be included; as a result this variable doesn't reflect change in victimization as in the male model but a summary measure of victimization between ages 12 – 19.

Females – Adolescent Limited vs. Chronic. The second comparison, in Table 11c, is between the adolescent limited group and the chronic group. Unlike the early starter/declining group found in the male sample, the adolescent limited group of females begins at a relatively low level of delinquency (albeit the second highest of all the female groups). This group displays a higher average level of delinquency during early/middle adolescence (from about age 14 to 16), but then decreases to roughly the same level of delinquency as the low level group. Both groups show the same overall pattern of delinquency, but the chronic group has a higher average level at each time point.

Living in a single parent household has a marginally significant effect; for those females that have a single parent at age 10 the probability of being in the adolescent limited vs. chronic group is decreased by about 54% (OR=.46; $p < .10$). The later measure of delinquent peers is also marginally significant, as delinquency of peers increases the likelihood of being in the adolescent limited group vs. the chronic group decreases (OR=.96; $p < .10$). Early experiences of racial discrimination help to explain differences between these two groups as well; as discrimination increases, the probability of being in the adolescent limited vs. chronic group

decreases by about 10% (OR=.90; $p < .01$). Early authoritative parenting is also important - as authoritative parenting increases, the probability of being in the adolescent limited vs. chronic group increases (OR=1.07; $p < .01$). Experiencing more close deaths of friends and family is also significant, as the number of deaths increases, the likelihood of being in the adolescent limited vs. chronic group decreases by about 16% (OR=.84; $p < .05$). Unlike the male sample, excelling in school may serve to buffer one from delinquency. As the number of advanced classes one is enrolled in increases, the probability of being in the adolescent limited group vs. the chronic group increases by about 54% (OR=1.5; $p < .05$). Lastly, as in the previous comparison victimization is important, as victimization increases the likelihood of being in the adolescent limited vs. chronic group decreases and is marginally significant (OR=.87; $p < .10$).

Females – Adolescent Limited vs. Late Starter. The last comparison of interest for the female sample is between the adolescent limited group and the late starter group. This comparison can also be seen in Table 11c. As with the early starter/declining and late starter groups in the male sample, the pathways of these two groups cross around age 16. Their levels of delinquency are similar to one another up until this point, and after the late starters increase to have the highest level of delinquency by around age 19 while the adolescent limited drastically decreases their delinquency by this age.

Experiencing the death of a close friend or relative before age 10 is important in distinguishing between these two groups; females who had this experience have greater odds of being in the adolescent limited vs. late starter group (OR=2.0; $p < .10$). Although this effect is substantial in magnitude, it is only marginally significant. Moving before age 10 is also significant, those who reported moving have a 47% lower probability of being in the adolescent limited vs. late starter group (OR=.53; $p < .05$). As in the previous comparison, excelling in

school is also significant, indicating that as the number of advanced classes increases, the probability of being in the adolescent limited vs. late starter group decreases (OR=.84; $p < .10$). Finally, as victimization experiences increase, the likelihood of being in the adolescent limited group vs. the late starter group decreases (OR=.84; $p < .10$).

Similar to the results for the male sample, both racial discrimination and deviant friends were important predictors of group membership for almost every comparison. However, there were a number of predictors that were significant (albeit sometimes marginally so) within the female sample that did not appear to be important for males. Two positive turning points were important – the experience of authoritative parenting and excelling in school. In addition, experiencing the death of close friends or relatives significantly predicted membership the chronic group as compared to both the adolescent limited and late starter groups. None of these variables significantly predicted membership for any comparison of the male groups. The next chapter will provide a discussion and elaboration of the results presented above.

CHAPTER 6

Discussion

The current study had several objectives. First, the patterns of delinquency among a sample of African American males and females were described by estimating a group-based trajectory model. The developmental or life-course approach argues that an individual's life is best understood by examining their experiences in the past and present (Elder 1998). This perspective is often used to investigate antisocial behavior throughout the life course; in particular, to help understand an empirically supported but logically unclear finding – that although most teenagers engage in delinquency, the majority of them do not grow up to be criminals and simultaneously most adult criminals have a history of antisocial behavior. Taxonomic approaches in criminology such as that of Moffitt (1993; 1997) use the life-course perspective and posit that multiple distinct groups of offenders exist that have their own unique distinguishing characteristics. By examining individuals within each group we can better understand the characteristics and life events that put one at most risk for becoming a lifelong criminal.

Secondly, the impact of life experiences and turning points was assessed to estimate their impact on group membership. Another prominent criminological theory that uses the life-course perspective is Sampson and Laub's (1993) theory of age-graded informal social control. They argue that the influence of social institutions and the experience of life events on delinquency vary with age. Past research indicates that a number of turning points, including family transitions (Apel and Kaukinen 2008; Cavanagh and Huston 2006; Simons et al. 2006a), changes in parenting characteristics (Stewart, Livingston, and Dennison 2008), romantic relationships

(Sampson, Laub, and Wimer 2006), and cognitive ability (Piquero and White 2003) are predictors of delinquency. The second goal of the analysis was to examine the impact of a set of personal/family characteristics and cumulative disadvantages, including turning points, to understand which were important in distinguishing between types of offenders.

The hypotheses outlined on pages 33 – 34 were tested using a rural and suburban sample of African American teenagers and were partially supported. The following chapter will discuss these results in more detail. There were a number of significant predictors of group membership for both the male and female sample, and several important differences between gender groups. The remaining part of this chapter will discuss these findings and what they may suggest about patterns of offending over time and the effect of turning points on delinquency throughout adolescence. When the results indicated a significant effect for both males and females, the equality of coefficients was tested using the recommendation from Paternoster and colleagues (1998). The differences discussed represent those that were significant at $p < .10$ level. The final section discusses limitations of the study and also describes avenues for future research based upon the findings.

Trajectory Groups

The results indicated that there were four groups with distinct pathways of delinquency in both samples, however the magnitude of delinquency levels and overall patterns differed slightly by gender. Consistent with recent research (McCabe, Hough, Wood, and May 2001; Park et al. 2008; Park et al. 2010; Schaefer, Petras, Ialongo, Poduska, and Kellam 2003) and as hypothesized, there were multiple trajectory groups for each sample and both included the presence of a late starter group. Two other groups – a chronic and low level group – were also present in both samples. A large body of past research supports the existence of these two

groups. However, as mentioned above, most of this past research has used all or mostly Caucasian samples. The current study provides evidence for the presence of these distinct types of offenders within African American populations as well.

The late starter group represented about 22 % of the female sample and about 23 % of the male sample. These individuals are arguably the most interesting group, given that they display so little antisocial behavior as children but drastically increase later in adolescence. While the development of new methodologies (such as the one utilized in this study) have led to the discovery of more than simply an adolescent limited and life-course-persistent offender, the predominant viewpoint in criminology remains that most lifelong criminals will show some indication of their future behavior as children. It remains to be seen whether or not this same tenet will hold true in more diverse samples, but this study may represent a piece of evidence to the contrary. However, while the individuals in this group (both male and female) have one of the highest levels of delinquency around age 19, that does not necessarily mean they will continue on this pathway. For example, some previous work (Sampson, Laub, and Eggleston 2004) has shown that even individuals with high rates of offending in early adulthood reach a “peak” by their mid-30s and begin to desist. Future work should follow the individuals within both the chronic and late starter groups to see if they continue on a similar pathway through early adulthood.

Unlike the results of Park and colleagues (Park et al. 2008), results from the current study showed more diversity in group membership. Their results showed three groups, including a low level group (which they label “steady”), a late starter/increasing group (“incremental”), and an early starter/declining group (“high starter”). However, almost 81% of their sample belonged to the low level group. In contrast, I found about half that proportion (39 % of males and 36 % of

females) showed a consistent pattern of low level delinquency. Given that their measure of antisocial behavior involved only violent acts this is not necessarily surprising. Nevertheless, the respondents in Park and colleagues' sample were also all residents of poor, inner-city neighborhoods and as such might be expected to engage in higher levels of violent delinquency than those in the current sample.

The discrepancy between the adolescent limited female group and the early starter/declining male group may be interpreted as a result of females' lower offending rates throughout life. In other words, with the exception of childhood (age 10 in this study), these two groups may follow similar patterns after onset of delinquency. Perhaps this group of males is what we would normally consider "adolescent limited", but their onset of delinquency is actually pre-adolescent and past research has not shown this effect because males and females are investigated in the same model. There were several differences in predictors of membership within these groups between males and females, however. For example, an increase in residential moves predicted a greater risk of being in this group for both males and females as compared to the low level group; this may represent a transition that increases offending during adolescence but does not influence a lasting change, as average levels in both of these decrease similar to the low level group by around age 19. This effect is slightly stronger for females; the difference between the coefficients is statistically significant ($p < .001$).

Predictors of Early Delinquency

The first set of variables investigated were measured around age 10. The goal of including these variables was two-fold – first, to control for earlier life experiences and second, to examine whether or not they could predict group membership. As a result of the timing of these measurements, the findings represent predictors of the starting point for each group. While

this time point cannot technically be referred to as “onset”, is taken at a young enough age that many of the respondents had displayed very little delinquency by this age. Those that did have a relatively high level of delinquency were in the chronic or early starter/declining (in the case of the males) groups. The early variables were examined in the hopes of distinguishing between those who are already become engaged in delinquency before adolescence.

The most influential predictors of early delinquency were deviant friends and racial discrimination. As the delinquency level of friends increases, the likelihood of being in the low level group decreases as compared to all other groups and for both males and females. For males, increases in early delinquent friends also predicts being in the chronic group as compared to early starter/declining. Given that the first measurement of delinquency is almost identical for these two groups this is surprising, and may indicate that even early relationships with peers who are delinquent can have a lasting impression on behavior in adolescence. In addition, an increased level of early deviant friends does not distinguish between the late starter and chronic groups.

A central debate in criminology is in regards to the mechanisms whereby peers influence delinquency. Some argue that individuals seek out friends who are similar to themselves, so they “self-select” into deviant peer groups (Gottfredson and Hirschi 1990). Others believe that individuals learn to be deviant partially through their peer networks, so associating with antisocial others exacerbates or teaches some individuals to be deviant who would otherwise be conventional (Akers and Sellers 2009; Patterson 1982). While this study cannot directly address this debate, it is interesting that both measures of peer delinquency significantly distinguish between almost all groups. In the future I hope to add to this work and disentangle the mechanisms whereby delinquent peers are affecting behavior over time. Additionally, although

effects are present for both males and females, the influence of deviant peers is slightly stronger for males (differences between all coefficients are statistically significant).

Early experiences of racial discrimination are also important in predicting the onset of delinquency. Among males, increases in this measure of racial discrimination predicted a lower probability of being in the low level group as compared to all others. For females the same was true but in addition the relative risk associated with increased discrimination also was also higher for those in the chronic group vs. late starters and chronic vs. adolescent limited. In essence, higher levels of racial discrimination predicted higher levels of delinquency, but only experiencing increased discrimination this early in life does not necessarily imply membership in a consistently high offending group.

Predictors of Developmental Patterns

There were also interesting findings with regards to changes over time. A number of the variables measuring change from age 10 to 19 significantly predicted group membership. Since these changes were happening concurrently with the patterns of delinquency described by each trajectory, they are interpreted as reflective of influences on these patterns. As in the case of the early variables, both changes in peer delinquency and racial discrimination are important predictors. Increases in delinquent peers result in a lower probability of being in the low level group compared to all others for both gender groups. For males, it also predicts a greater risk of being in the late starter vs. early starter/declining group; and a greater risk of being in the chronic group vs. all others. Lastly, for females, an increase in delinquent friends also predicts a greater risk of being in the chronic group vs. the adolescent limited.

Overall, the results for effects of delinquent friends reflect a pattern that individuals who have friends that are increasingly delinquent through adolescence are also more likely to follow a

pattern of increased delinquency. This is consistent with a number of past studies (Button et al. 2007; Matsueda and Anderson 1998; Miller, Loeber, and Hipwell 2009; Rebellon 2006). As mentioned above, the finding that peer behavior influences delinquency is not surprising; the more interesting question lies in disentangling this effect. It is likely that delinquent behaviors of the target and their friends are reciprocal and influence each other at least to some degree. McGloin (2009) recently found evidence for this type of pathway, and before making definitive causal conclusions with regards to results from the current study, this possibility should be taken into consideration empirically.

Increases in racial discrimination also significantly predicted group membership in the expected direction. For several comparisons experiencing an increase in discrimination coincided with a greater risk of belonging to a high rate or increasing group. For example, it was associated with a decreased likelihood of being in the low level group as compared to both the late starter and chronic group for males, as well as a lesser likelihood of being in the low level as compared to chronic group for females. The comparison between the low level and chronic group shows that the effect for males is slightly larger; this difference is statistically significant. As in the case of delinquent peers, if an individual experiences an increasing amount of racial discrimination through adolescence they are more likely to follow a path of increasing delinquency.

There were several effects for experiencing victimization. For females, an increasing number of victimizations resulted in a lower probability of being in the low level group as compared to all others, as well as a greater risk of being in the late starter group vs. adolescent limited, and a greater risk of being in the chronic group vs. the late starter. For males, increasing victimization only predicted a lower probability of being in the low level group as compared to

both early and late starters. There is a fundamental debate about the victimization-offending link, wherein some argue that victimization is a cause of offending, while others believe the association is spurious and both experiences are a result of underlying characteristics. A recent study by Ousey and colleagues (2011) found results supporting a population heterogeneity argument, or that stable individual characteristics explained some of the positive association with victimization and offending. In fact, after controlling for time-stable characteristics this study found a negative effect of victimization on offending. However, their sample was largely white and from a rural area; they caution that the findings may not hold when tested with other samples. The results from the current sample may be reflective in part of a more delinquent, higher-risk group.

Gender Differences

While the number of groups and patterns were more similar than different when comparing males and females, there were several important discrepancies that supported the separation into gender groups. First, the adjustments to arrive at the best fitting model were different for males and females. The late starter group in the male sample showed a linear trend wherein they increased their offending steadily between about ages 10 and 19. While visually the trend for the female group of late starters appears the same, it is specified as a quadratic pathway. Fit statistics for each model indicated there was a significant degradation in model fit when constraining this to a linear trajectory. Secondly, while the early starter/declining male group and adolescent limited female group are also similar, the starting point at age 10 is substantially different. Males in the early starter/declining group began delinquency at a level comparable to the chronic group, whereas females in the adolescent limited group began at a much lower level. Lastly, the magnitude of average delinquency levels was consistently lower

for females in each group and at each time point. Combining gender groups would have masked these differences.

In addition, there were several important differences in terms of significant predictors of group membership. For females, authoritative parenting was a significant predictor in several of the contrasts. Females that experienced an increase in authoritative parenting between the ages of 10 and 19 were more likely to be in the low level group, as compared to all others. They also had a lower relative risk of being in the chronic group as compared to all others. Females that had a higher level of early authoritative parenting (at age 10) displayed lower levels of delinquency as well. There was a significant effect indicating a lower probability of being in low level group as compared to both the adolescent limited and chronic group, as well as a greater risk of being in the chronic group vs. all other groups.

The results show that parenting practices are one of the mechanisms contributing to an increased level of delinquency for females. This is true both in terms of predicting one's early delinquency and development over time. The early measure indicated that female children with less authoritative parenting were more likely to have an elevated level of delinquency at age 10 based on a number of comparisons. In addition, those that experienced increases in authoritative parenting throughout adolescence were more likely to be in the lowest level group and less likely to be in the chronic group. Some researchers have predicted that effects of parenting will fade as one reaches adolescence, and the effects of peers will become stronger (Sampson and Laub 1993); for females at least in the current study this was not the case. However, there were still significant effects of peer delinquency within this sample as well; future research may help to distinguish which of these mechanisms is more important for females.

Also for females, living in a single parent household predicts membership in the chronic group vs. low level and adolescent limited groups. This was the only structural family effect that was statistically significant. The other structural family measure, number of family transitions, did not have any significant effects on group membership for females. In contrast, for males, family transitions predicted membership in both the low level and early starter/declining group as compared to the late starters. Krohn, Hall, and Lizotte (2009) found similar results in terms of this gender difference in the effect of family transitions on delinquency. Additionally, there was one significant effect for living in a single parent household within the male sample – an increased risk of being in the chronic group as compared to the late starter (essentially predicting a lower level of delinquency at age 10). It is interesting that quality of parenting measures matter in predicting female delinquency, while the structural characteristics appear to be more important for males.

In a recent study investigating delinquent behavior of African American males and females, Bowman and colleagues (2007) found that among females the effect of maternal monitoring was moderated by maternal involvement. The same effect was not present for African American males. They hypothesize that paternal involvement and monitoring may be more important for males. Given that the majority of primary caregivers in the current sample are mothers, the results could be reflective of a similar issue. In addition, the measure of authoritative parenting used in the current study is a composite of parental warmth, monitoring, and hostility. Perhaps one of these dimensions is important for males but the effect is masked by using this type of measure. Barrera and colleagues (Barrera, Prelow, Dumka, Gonzales, Knight, Michaels, Roosa, and Tein 2002) also suggest that parental monitoring and involvement may be less influential in families facing hardships such as single parenthood, given that the structural

measures of family transitions and single parent household were significant in many of the contrasts between male groups, the effects of parenting practices may be confounded with the effect of these variables.

Another predictor that showed significant results for females but not males was being enrolled in advanced classes in school. The early measure was not statistically significant for any of the contrasts considered, so it appears that one isolated incident of being placed in an advanced class may not be very influential in predicting delinquency. However, for the female sample, an increasing number of advanced classes throughout adolescence predicted a lesser risk of being in the chronic group vs. all others. In a recent study with a minority sample (66.5% black and 28.8% Latino), Hirschfield and Gasper (2011) found that emotional and behavioral school engagement reduced delinquency. The measure used in the current study differs from this, but it is plausible to think those who are involved with higher level or advanced classes would feel more engaged in school. In addition, there is support that academic performance as measured in a variety of ways influences delinquency (Maguin and Loeber 1996). Harachi and colleagues (Harachi, Fleming, White, Ensminger, Abbott, Catalano, and Haggerty 2006) found that school-related constructs were somewhat more important for females than males also. They conducted GBTM that resulted in four groups, and for both genders measures of attachment and commitment to school were significantly related to higher levels of antisocial behavior; for girls, however, those in the highest level group reported lower average scores on attachment, which they suggest may be indicative of more disenfranchisement. They argue “the high aggression subgroup of girls identified by these results may be beginning a self-sustaining cycle of rejection and negative sense of self and may be at subsequent risk for a number of clinically meaningful difficulties (Harachi et al. 2006: 290).”

The last variable in particular that showed a different pattern of results for each gender group was the measure of experiencing the death of a close friend or family member. Neither measure (early or cumulative) showed significant effects for the male sample. However, there were a number of significant comparisons among females. The early measure predicted membership in the adolescent limited group as compared to the late starter, indicating that females who reported the death of a close friend or family member around age 10 were much more likely to be in the adolescent limited group. For females, this may operate as a turning point when it happens at a young age, and result in a slightly higher delinquency level initially but without a lasting effect (the starting points for this group is higher than the late starter group). There are also several group comparisons that are significantly predicted by the cumulative effect of this experience through adolescence. Increases in the total number of deaths experienced resulted in an increase in the risk of being in the chronic group vs. the late starter and adolescent limited groups. Given that the chronic group shows higher average levels of delinquency at almost all time points, this can be interpreted as having a positive effect on delinquency.

Overall, there were more significant predictors of group membership in the female sample. Specifically, most of these effects were of variables that measured some aspect of relationships – both family and friends. The same characteristics of relationships (with the exception of deviant friends) were not significant predictors within the male sample. This may be an indication of the relative importance of these relationships in predicting delinquency. For males, parental behavior did not have an impact on delinquency, while friends were very important and showed a stronger effect than for females. There is some support for the idea that peers are more important than parents in determining delinquency as an adolescent (Cook,

Buehler, and Henson 2009), results from this study indicate this may be true for males but not females.

Limitations and Future Research

Although this study extended past research on the development of delinquency among African Americans, it also suffered certain limitations and results should be interpreted in light of them. First, because the sample studied was entirely African-American, I cannot generalize results to other racial/ethnic groups. Nevertheless, this study represents an investigation of a population that has been understudied from this viewpoint but is at high risk for delinquency. The results add further knowledge to life-course/developmental research as well as rich body of research on African American populations and delinquency. Future work should continue to focus on African American populations to see if these results and other life course studies can be replicated with individuals from other types of locations/neighborhoods as well.

Second, the current study utilized a broad measure of delinquency that captured acts ranging from status offenses to serious violent crimes. It is plausible to think that had the measure been more narrow and specific, the number and pattern of groups would be different as well. Violent delinquency is a rarer occurrence in adolescence than minor offenses such as truancy, underage drinking, and vandalism. Undoubtedly, one of the underlying reasons for finding a chronic delinquent group in both gender samples is related to the operationalization of this construct. In the future I hope to also investigate trajectory groups of offending by examining crime types separately.

Recent advice of several scholars have cautioned against using measurements of peer behavior taken only from the respondent, which may bias results (Meldrum, Young, and Weerman 2009). Unfortunately, the only measure of deviant friends available at all time points

consisted of questions asked to the respondent about their peers' behavior. As a result, the effects should be interpreted with this in mind. While I do not believe this negates the validity of this effect, in the future I hope to utilize the direct measurements asked of the respondents' best friend in later waves of data to corroborate these results.

There are many important factors to consider when predicting delinquency, and we were only able to include a portion of these correlates and predictors. The results are only indicative of these variables, and in the future I would like to continue this work with other important predictors such as the direct measurement of deviant friends mentioned above, as well as more nuanced measures of turning points included and others such as arrest/incarceration, military involvement, and parenthood.

Another limitation of the current study involved the amount of missing data. The estimation strategy for GBTM allows for one time point within the trajectory to be missing, as a result the total number of cases with a valid trajectory group assignment was slightly different than the compilation of cases with a valid response to every independent variable. In order to utilize the most data possible, I substituted the mean value by group for missing values. While this may lead to a small amount of bias in the results, it was necessary to retain large enough cell sizes to detect significance between groups. Analyses without the missing cases showed a similar pattern in terms of direction for the results but with less significant coefficients.

When conducting developmental research on the life-course, it is ideal to have data that spans as much time as possible. The data used for this study included information regarding ages 10 to about 19. This period of life is important to study, in part because most individuals display their highest level of delinquency during this age range, but nevertheless it is only a portion of one's life. In order to fully understand processes of desistance from crime a longer

time span of data collection is needed. As more data is collected from this sample I hope to continue investigating trajectory groups to further disentangle the mechanisms responsible for changes in offending over time. In particular, I am interested in exploring the role of romantic relationships as this sample enters into a stage of life when most individuals get married.

An additional future goal is to predict later life outcomes based upon patterns of delinquency in adolescence. I hope to use data from subsequent waves up to about age 24 to predict experiences such as violent crime levels and arrest/incarceration. As suggested by (Bradshaw, Schaeffer, Petras, and Jalongo 2010) one of the next steps from this research will be to also investigate trajectory group membership and its relation to non-aggressive negative life outcomes. Their work suggests that this link exists and may differ by gender. In the future I hope to explore outcomes such as depression and substance abuse to estimate risk associated with group membership.

Lastly, the measures of change utilized in the current study represent changes that occur between the ages of 10 and 19, but do not specify when this change occurs. While the results produced shed some light on the influence of various turning points on delinquency throughout adolescence, a more nuanced understanding of how each of these operate would be even more enlightening. The variables used represent cumulative effects of an increased number of turning points, in the future I hope to also examine how changes between each time point influence group membership.

A final note of caution is in regards to the reification of groups that is a hazard stemming from the use of this methodology. Nagin says, "Because the groups are intended as an approximation of a more complex reality, the objective is not to identify the 'true' number of groups. Instead, the aim is to identify as simple a model as possible that displays the distinctive

features of the population distribution of trajectories (2005: 173).” As he describes, the use of groups or schemas make a complex reality easier to understand, but should be interpreted with respect and awareness of how they were created. This is especially pertinent when groups are created statistically such as with the method used in this study (Nagin 2005).

The assignment of individuals to a group, especially when the behavior of interest is an undesirable one, has risks that need to be acknowledged as well. Nagin (2005) identifies two main risks that are associated with this type of analysis. First, both the number of groups and the pattern each follows should not be interpreted as permanently fixed. Sensitivity analyses conducted by Nagin (2005) and by Sampson and colleagues (Sampson, Laub, and Eggleston 2004) indicate that the stability of each group may depend greatly on the follow-up period within a given study. It is certainly plausible that a group displaying high delinquency at age 18 may still decline substantially in their early 20’s, for example. Researchers doing work in this area should be mindful of this limitation, and be sure to acknowledge that whatever model produced is only accurate for the particular time period considered. As Nagin points out, “the uncertainty of trajectory group membership of individuals who remained active offenders at the close of the observation period is a reminder that even though the past is prologue to the future, the past does not determine the future (2005: 175).”

The second caution of the reification of groups is related to predicting group membership based on risk factors. Nagin makes a distinction between two type of prediction analysis – “one is to predict an individual’s behavioral trajectory for the purpose of classifying him or her as a type...the second is to identify risk characteristics within the population at large which, if altered, might lead to better outcomes on average (2005: 178).” The latter type of prediction allows for interventions that reduce risk overall, and as such does not target particular

individuals. The danger associated with prediction of group membership arises when one attempts to identify and then “label” an individual. While identifying risk factors for increased delinquency is an important task (and in fact the entire purpose of the current study), one must remain cognizant of the fact that just because an event or characteristic is a risk factor does not imply that everyone who experiences that event or possesses that characteristic will actually display increased delinquency. As in the case of all methodological approaches, GBT models are certainly not perfect. They simply provide an avenue to summarize complex patterns in a parsimonious way. They “improve a researcher’s ability to identify, summarize, and communicate complex patterns in longitudinal data (2005: 184).”

The results of the current study add to the body of literature investigating developmental patterns of antisocial behavior, but should be interpreted with the above limitations in mind. Overall they suggest that both relationships with parents and peers, as well as turning points such as victimization and family transitions, are important in understanding trajectories of delinquency for African Americans. Further research is needed to replicate the findings, and to determine whether these effects remain as individuals enter into early adulthood, but the results represent an important contribution to the body of work on developmental patterns of delinquency.

CHAPTER 7

Conclusion

Developmental research on antisocial behavior aims to understand how events and experiences throughout life explain patterns of behavior over time. The purpose of the current study was two-fold. The first goal was to describe the number of trajectory groups of delinquency present within an African American sample of males and females and the patterns of behavior shown by each trajectory group. This part of the analysis utilized a group-based trajectory model to objectively estimate how many distinct groups of offenders were present in this sample. While a number of researchers have used this methodology to investigate patterns of delinquency, there are few studies that have used samples with respondents who are not Caucasian. Additionally, much developmental research has focused on male samples. This study adds to this body of research by using a rural and suburban African American sample of individuals, and estimating models separately for males and females. The results indicated that although there were four distinct groups in both gender samples, the patterns over time were different for males and females.

The second portion of the analysis focused on exploring possible predictors of trajectory group membership. A number of predictors were considered, both characteristics of the individual and their relationships, as well as life events identified as potential “turning points”. The results indicated that racial discrimination and delinquency of friends were important predictors that distinguished between higher-rate delinquents and others for both males and females. Several predictors were also important for females that did not show significant effects

for males – namely, levels of authoritative parenting, experiencing more deaths of close friends/family members, and excelling in school.

Sampson and Laub (2003; 1993) theorize that both early indicators such as parental relationships, as well as experiences throughout adolescence, are important in determining patterns of antisocial behavior over the life course. The current study supports this view. In particular, experiencing a family transition, moving, and contact with deviant friends were important in predicting early levels of delinquency. Subsequent experiences of these events, as well as racial discrimination, authoritative parenting, excelling in school, and experiencing victimization were all important to understand the development of delinquency through adolescence. These results indicate that predictors of offending are similar for African Americans as other racial/ethnic groups, but also shed light on unique predictors such as racial discrimination.

In conclusion, the current study adds to developmental research by further disentangling predictors of delinquency patterns among an African American sample of males and females. The choice of methodology provided an objective estimation of distinct offending patterns within a sample that has been understudied from this perspective. The results point to personal relationships (both between parents and their adolescents, and between peers) as particularly important factors in the development of delinquency. Additionally, racial discrimination both at an early age and throughout adolescence was a strong predictor of increased delinquency for both males and females. Future work should continue to investigate these processes to further understand how they affect offending patterns through young adulthood and beyond.

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Table 1a. Descriptive Statistics, males (N = 354)

	Mean	Std. Deviation	Min	Max
Class	3.46	1.25	0	5
Single Parent	0.55	0.49	0	1
Family Transitions	1.07	0.95	0	3
Early Deviant Friends	23.2	4.82	19	47
W4 Deviant Friends	20.69	4.66	15	38
Early Discrimination	20.58	6.92	13	46
W4 Discrimination	23.36	8.43	13	49
Early Authoritative Parenting	78.26	8.42	48	92
W4 Authoritative Parenting	71.71	5.63	52	82
Death of Relative or Friend	0.16	0.36	0	1
Subsequent Deaths	1.83	1.22	0	6
Move before age 10	0.29	0.45	0	1
Total residential moves	1	0.89	0	3
Early Advanced Class	0.18	0.39	0	1
Later School - Adv Class	0.46	0.72	0	2
Early Victimization	0.002	0.05	0	1
Subsequent Victimization	0.39	0.71	0	5

Table 1b. Descriptive Statistics, females (N = 427)

	Mean	Std. Deviation	Min	Max
Class	3.45	1.27	1	5
Single Parent	0.49	0.52	0	1
Family Transitions	1.02	0.94	0	3
Early Deviant Friends	22.31	3.98	19	43
W4 Deviant Friends	20.33	3.81	15	35
Early Discrimination	21.43	6.73	13	46
W4 Discrimination	22.57	7.16	13	46
Early Authoritative Parenting	78.44	8.41	48	92
W4 Authoritative Parenting	71.81	6.86	51	83
Death of Relative or Friend	0.68	0.47	0	1
Subsequent Deaths	3.12	1.34	0	6
Move before age 10	0.29	0.46	0	1
Total residential moves	0.9	0.8	0	3
Early Advanced Class	0.21	0.41	0	1
Later School - Adv Class	0.46	0.71	0	2
Early Victimization	0.15	0.36	0	1
Subsequent Victimization	0.99	1.31	0	3

Table 2. BIC statistics based on number of groups, males

No. of groups	BIC (N=354)	BIC (N=1337)	Probability correct model
2	-3392.99	-3397.64	0.000
3	-3265.29	-3272.6	0.000
4	-3166.19	-3176.16	0.000
5	-3115.16	-3127.78	0.000
6	-3094.6	-3109.88	0.000
7	-3079.68	-3097.62	1.000

Table 3. BIC statistics based on number of groups, females

No. of groups	BIC (N=427)	BIC (N=1630)	Probability correct model
2	-3441.76	-3446.45	0.000
3	-3334.16	-3341.53	0.000
4	-3240.04	-3250.09	0.000
5	-3219.01	-3231.74	0.000
6	-3201.17	-3216.58	0.000
7	-3186.88	-3204.97	1.000

Table 4. Comparison of predicted trajectories for three-, four-, five-, and six-group models of delinquency, males.

Three-group model: Predicted trajectory

	Group 1	Group 2	Group 3
Wave			
1	0.49	4.65	2.68
2	1.34	4.87	5.89
3	1.74	3.74	8.27
4	1.77	1.86	9.33

Four-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4
Wave				
1	0.42	4.57	1.25	4.21
2	1.22	4.68	2.29	8.71
3	1.45	3.77	3.82	10.60
4	1.05	1.28	6.73	8.90

Five-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4	Group 5
Wave					
1	0.49	0.56	0.90	4.47	5.05
2	1.37	1.19	3.22	4.52	9.11
3	1.17	2.03	5.89	3.87	10.53
4	0.29	3.59	9.53	1.75	8.67

Six-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Wave						
1	0.37	1.64	2.18	0.96	6.73	4.41
2	0.83	5.87	2.81	2.37	3.84	8.42
3	1.43	5.43	0.58	4.44	3.26	10.97
4	1.63	0.80	0.00	7.80	3.28	9.94

Table 5. Comparison of predicted trajectories for three-, four-, five-, and six-group models of delinquency, females.

Three-group model: Predicted trajectory

	Group 1	Group 2	Group 3
Wave			
1	0.23	1.03	3.70
2	0.56	2.40	6.70
3	0.77	3.11	7.78
4	0.47	3.28	4.24

Four-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4
Wave				
1	0.17	0.46	1.78	4.26
2	0.44	1.84	3.62	7.00
3	0.82	3.85	3.20	8.13
4	0.67	5.94	1.02	5.19

Five-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4	Group 5
Wave					
1	0.12	1.14	0.44	3.14	3.83
2	0.27	2.08	1.85	6.00	7.23
3	0.37	2.26	3.63	6.05	9.14
4	0.58	0.97	5.89	1.45	8.07

Six-group model: Predicted trajectory

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Wave						
1	0.06	0.18	1.55	0.92	3.42	5.41
2	0.66	0.25	2.67	3.26	6.53	8.71
3	2.23	0.38	2.29	5.36	6.47	9.81
4	3.04	0.24	0.90	6.90	1.45	8.33

Table 6. Diagnostics of model performance, males.

Group No.	3 group model		4 group model		5 group model		6 group model	
	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification
1	0.83	2.20	0.76	2.23	0.62	1.88	0.79	30.88
2	0.89	21.42	0.90	28.78	0.83	19.05	0.68	2.01
3	0.95	63.15	0.85	18.55	0.85	36.43	0.80	24.91
4	--	--	0.95	113.41	0.88	20.47	0.86	22.27
5	--	--	--	--	0.94	129.17	0.83	48.70
	--	--	--	--	--	--	0.95	142.42

Table 7. Diagnostics of model performance, females.

Group No.	3 group model		4 group model		5 group model		6 group model	
	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification	Ave. PP	Odds Correct classification
1	0.92	20.80	0.78	3.65	0.89	22.74	0.79	16.24
2	0.78	2.57	0.87	25.61	0.64	2.37	0.87	21.56
3	0.93	57.04	0.84	12.59	0.88	28.48	0.61	2.60
4	--	--	0.90	59.23	0.83	27.10	0.86	33.14
5	--	--	--	--	0.89	102.17	0.85	42.32
6	--	--	--	--	--	--	0.90	211.92

Table 8. Male Group Profile (N = 354)

	Group 1	Group 2	Group 3	Group 4
	Low	Early	Late	
	Level	Starter	Starter	Chronic
Mean Posterior Probability				
Group 1 (N = 142)	0.92	0.03	0.05	0.00
Group 2 (N = 82)	0.05	0.90	0.04	0.01
Group 3 (N = 82)	0.06	0.07	0.85	0.02
Group 4 (N =48)	0.00	0.03	0.02	0.95
Early Predictors				
Class	3.34	3.50	3.54	3.54
Single Parent Home	0.45	0.44	0.54	0.33
Deviant Friends	-1.76	4.20	1.07	2.87
Racial Discrimination	-2.34	2.17	-1.83	1.38
Authoritative Parenting	1.94	3.24	0.38	-0.72
Close Death	0.14	0.23	0.13	0.17
Move before age 10	0.30	0.28	0.39	0.38
Early Advanced Class	0.12	0.15	0.12	0.10
Victimization	0.01	0.00	0.00	0.00
Later Adolescent Experience				
Family Transitions	0.82	0.95	1.32	0.96
Change in Deviant Friends	-1.21	4.20	1.07	6.74
Change in Racial Discrimination	0.34	-2.47	5.15	3.99
Change in Authoritative Parenting	-0.80	3.65	-0.45	-0.72
Close Deaths	-0.19	-0.01	-0.20	-0.02
Residential Moves	-0.50	0.00	0.11	0.18
Advanced Classes	-0.11	0.15	-0.11	-0.43
Victimization	-0.52	0.20	0.02	0.20

Table 9. Female Group Profiles (N = 427)

	Group 1	Group 2	Group 3	Group 4
	Low	Late	Adolescent	
	Level	Starter	Limited	Chronic
Mean Posterior Probability				
Group 1 (N = 156)	0.92	0.03	0.05	0.00
Group 2 (N = 91)	0.04	0.87	0.05	0.03
Group 3 (N = 125)	0.06	0.04	0.84	0.04
Group 4 (N = 55)	0.00	0.04	0.06	0.90
Early Predictors				
Class	3.50	3.30	3.56	3.35
Single Parent Home	0.42	0.56	0.46	0.65
Deviant Friends	-2.29	-2.42	-0.11	4.61
Racial Discrimination	-1.42	-0.76	0.34	6.64
Authoritative Parenting	1.99	0.93	-0.04	-9.01
Close Death	0.15	0.12	0.26	0.28
Move before age 10	0.19	0.43	-0.01	0.29
Early Advanced Class	0.22	0.32	0.21	0.18
Victimization	0.00	0.01	0.01	0.00
Later Adolescent Experience				
Family Transitions	0.92	1.12	1.09	1.00
Change in Deviant Friends	-1.28	-2.42	0.07	0.13
Change in Racial Discrimination	-0.99	0.93	-0.47	-3.62
Change in Authoritative Parenting	0.83	-4.01	-1.24	5.94
Close Deaths	0.12	0.13	-0.01	0.64
Residential Moves	0.19	0.32	0.38	0.70
Advanced Classes	0.32	0.21	-0.03	-0.56
Victimization	-0.47	0.66	0.02	1.11

Figure 1. Trajectories of Delinquency, Males

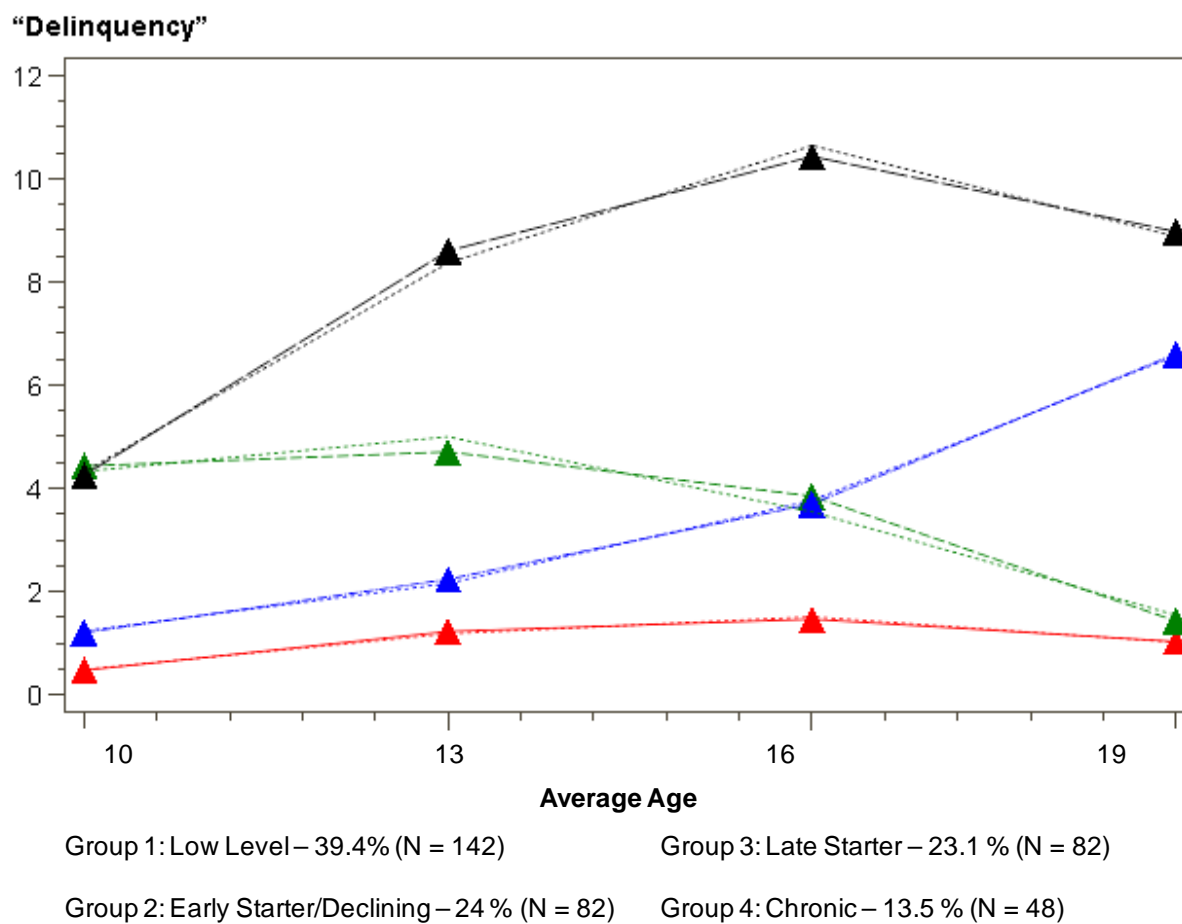
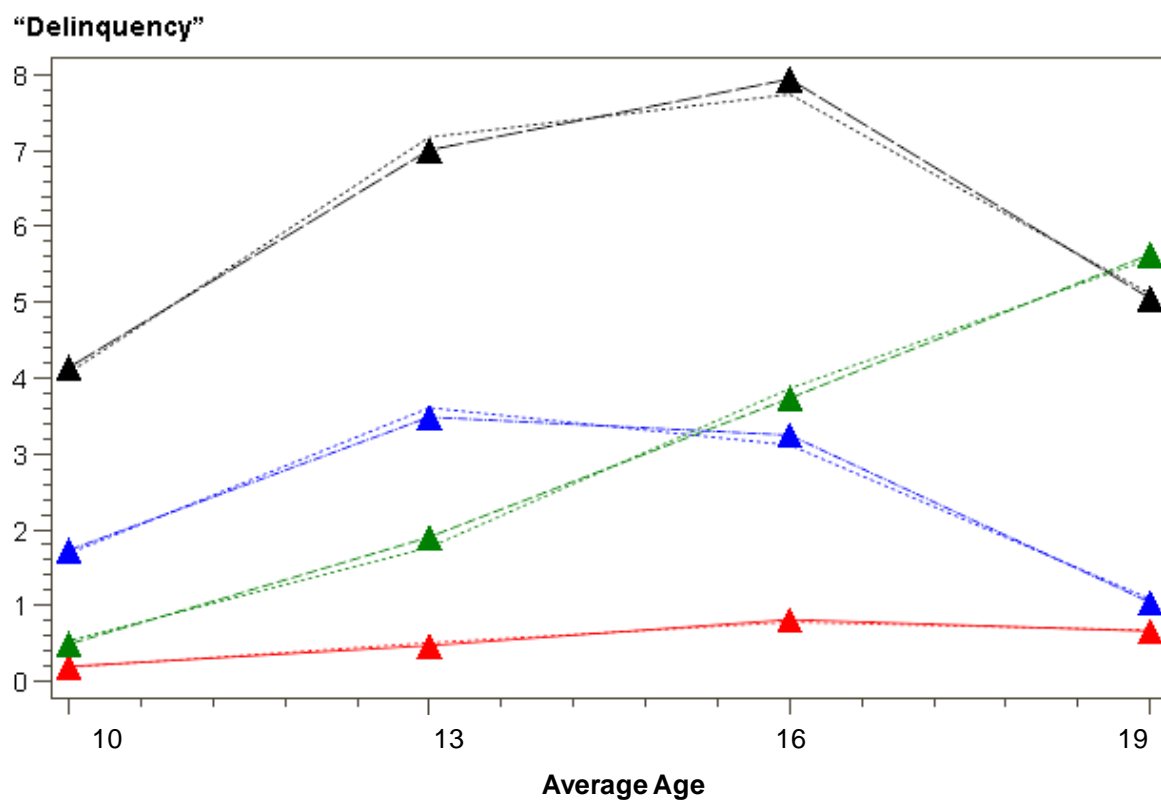


Figure 2. Trajectories of Delinquency, Females



Group 1: Low Level – 36.2% (N = 156)

Group 3: Adolescent Limited – 28.2 % (N = 125)

Group 2: Late Starter – 22 % (N = 91)

Group 4: Chronic – 13.5 % (N = 55)

Figure 3. Trajectories of Delinquency, Males and Females

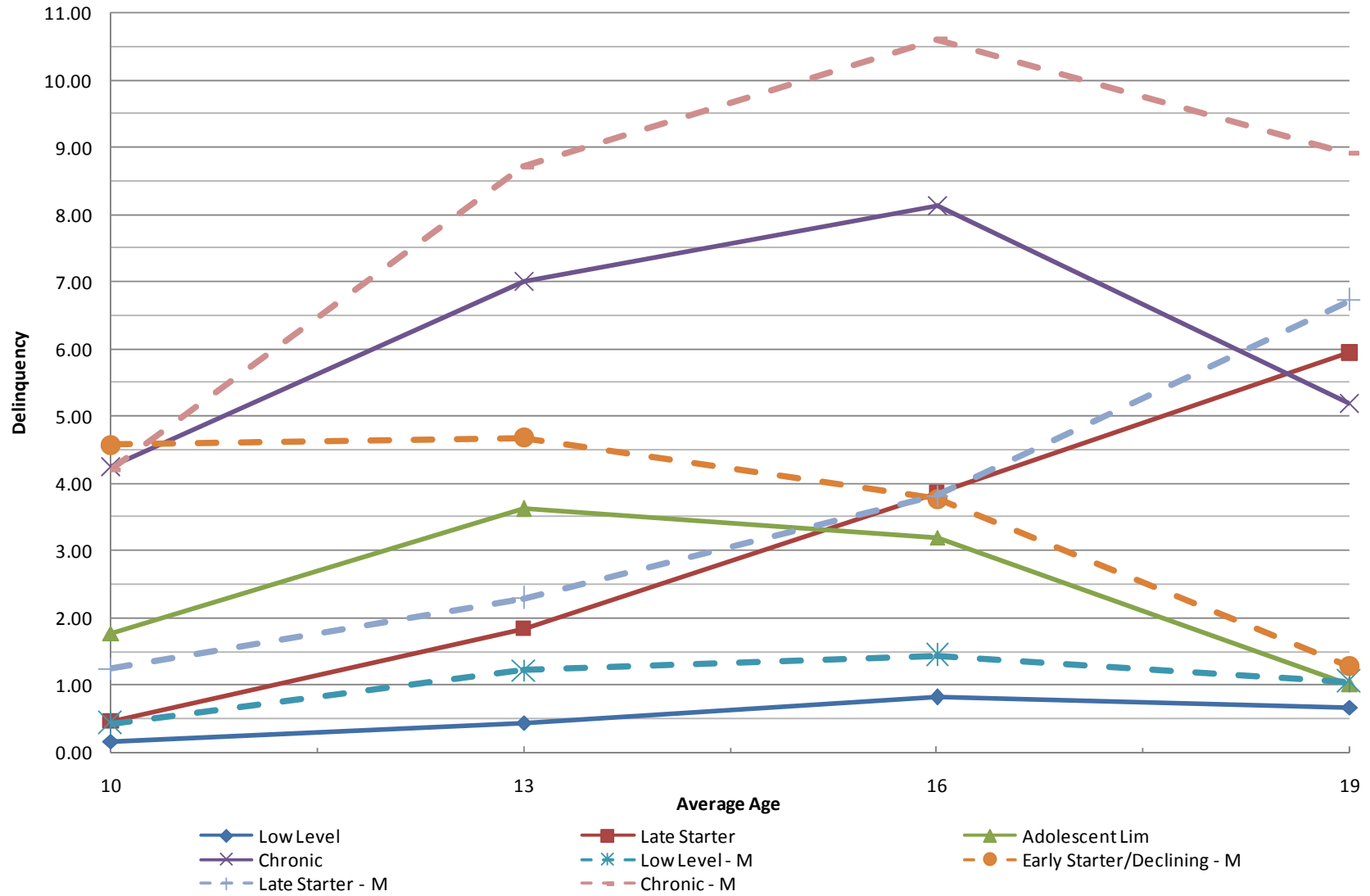


Table 10a. Multinomial Logistic Regression Results (Odds Ratios reported), Males (N = 354)

Comparison Group	Base Outcome Group			
	Low Level Base	Early Starter Base	Late Starter Base	Chronic Base
Low Level				
Class		0.842	0.797 +	0.798
Single Parent		0.850	0.650	1.454
Family Transitions		0.803	0.589 **	0.750
Early Deviant Friends		0.914 **	0.863 ***	0.832
Change in Deviant Friends		0.943 *	0.893 ***	0.852
Early Discrimination		0.964	0.978	0.931 ***
Change in Discrimination		1.000	0.955 *	0.953 ***
Early Authoritative Parenting		1.024	0.988	1.037 *
Change in Authoritative Parenting		0.975	0.972	1.001 *
Death of Relative or Friend		0.818	1.512	1.196
Subsequent Deaths		0.991	1.060	1.163
Move before age 10		1.385	0.856	0.889
Total residential moves		0.851 +	0.868 +	0.865
Early Advanced Class		0.737	0.976	0.842
Later School - Adv Class		0.948	1.032	1.234
Early Victimization		0.000	0.000	0.000
Subsequent Victimization		0.786 *	0.811 +	0.834
Constant		3.320 *	7.774 ***	10.690

ll = -381.105; chi-square = 168.758; r-square = .181

+ p < .10; * p < .05; ** p < .01; *** p < .001

Table 10b. Multinomial Logistic Regression Results (Odds Ratios reported), Males (N = 354)

Comparison Group	Base Outcome Group			
	Low Level Base	Early Starter Base	Late Starter Base	Chronic Base
Early Starter				
Class	1.188		0.947	0.949
Single Parent	1.052		0.684	1.530
Family Transitions	1.246		0.734 +	0.934
Early Deviant Friends	1.095 **		0.944 +	0.910
Change in Deviant Friends	1.061 *		0.947 *	0.904
Early Discrimination	1.037		1.015	0.966 **
Change in Discrimination	1.000		0.954 *	0.952 ***
Early Authoritative Parenting	0.976		0.965	1.013
Change in Authoritative Parenting	1.025		0.997	1.026 *
Death of Relative or Friend	1.223		1.849	1.463
Subsequent Deaths	1.009		1.070	1.173
Move before age 10	0.722		0.618	0.642
Total residential moves	1.175 +		1.020	1.017
Early Advanced Class	1.357		1.325	1.143
Later School - Adv Class	1.055		1.089	1.302
Early Victimization	0.000		1.121	0.665
Subsequent Victimization	1.272 *		1.031	1.061
Constant	0.301 *		2.342	3.220

ll = -381.105; chi-square = 168.758; r-square = .181

+ p < .10; * p < .05; ** p < .01; *** p < .001

Table 10c. Multinomial Logistic Regression Results (Odds Ratios reported), Males (N = 354)

Comparison Group	Base Outcome Group			
	Low Level Base	Early Starter Base	Late Starter Base	Chronic Base
Late Starter				
Class	1.254 +	1.056		1.001
Single Parent	1.539	1.463		2.238
Family Transitions	1.698 **	1.363 +		1.273
Early Deviant Friends	1.159 ***	1.059 +		0.964 +
Change in Deviant Friends	1.120 ***	1.056 *		0.954
Early Discrimination	1.022	0.985		0.952
Change in Discrimination	1.048 *	1.048 *		0.998 *
Early Authoritative Parenting	1.012	1.036		1.049
Change in Authoritative Parenting	1.028	1.003		1.029
Death of Relative or Friend	0.661	0.541		0.791
Subsequent Deaths	1.943	0.935		1.097
Move before age 10	1.168	1.617		1.038
Total residential moves	1.152 +	0.981		0.997
Early Advanced Class	1.024	0.755		0.863
Later School - Adv Class	0.969	0.919		1.196
Early Victimization	0.000	0.002		0.593
Subsequent Victimization	1.234 +	0.970		1.029
Constant	0.129 ***	0.427		1.375

ll = -381.105; chi-square = 168.758; r-square = .181

+ p < .10; * p < .05; ** p < .01; *** p < .001

Table 10d. Multinomial Logistic Regression Results (Odds Ratios reported), Males (N = 354)

Comparison Group	Base Outcome Group			
	Low Level Base	Early Starter Base	Late Starter Base	Chronic Base
Chronic				
Class	1.252	1.054	0.999	
Single Parent	0.688	0.653	0.447 +	
Family Transitions	1.334	1.071	0.786	
Early Deviant Friends	1.203 ***	1.099 **	1.038	
Change in Deviant Friends	1.174 ***	1.106 ***	1.048 *	
Early Discrimination	1.074 *	1.035	1.051	
Change in Discrimination	1.050 *	1.050 *	1.002	
Early Authoritative Parenting	0.964	0.987	0.953	
Change in Authoritative Parenting	0.999	0.974	0.972	
Death of Relative or Friend	0.836	0.683	1.264	
Subsequent Deaths	0.860	0.852	0.912	
Move before age 10	1.125	1.558	0.964	
Total residential moves	1.156	0.984	1.003	
Early Advanced Class	1.187	0.875	1.159	
Later School - Adv Class	0.810	0.768	0.836	
Early Victimization	0.111	0.010	1.685	
Subsequent Victimization	1.199	0.943	0.972	
Constant	0.094 *	0.311	0.727	

ll = -381.105; chi-square = 168.758; r-square = .181

+ p < .10; * p < .05; ** p < .01; *** p < .001

Table 11a. Multinomial Logistic Regression Results (Odds Ratios reported), Females (N = 427)

Comparison Group	Base Outcome Group			
	Low Level Base	Late Starter Base	Adolescent Lim Base	Chronic Base
Low Level				
Class		1.014	0.844	0.845
Single Parent		0.611	0.790	0.362 *
Family Transitions		0.898	0.889	1.067
Early Deviant Friends		0.940 +	0.929 *	0.900 **
Change in Deviant Friends		0.909 ***	0.934 **	0.894 ***
Early Discrimination		0.956 +	0.951 *	0.856 ***
Change in Discrimination		0.972	0.975	0.954 +
Early Authoritative Parenting		1.034	1.049 *	1.120 ***
Change in Authoritative Parenting		1.044 **	1.043 **	1.046 *
Death of Relative or Friend		1.280	0.641	0.718
Subsequent Deaths		1.124	1.124	0.945
Move before age 10		0.339 **	0.640	0.748
Total residential moves		0.865 +	0.842 *	0.782 *
Early Advanced Class		0.908	0.785	0.491
Later School - Adv Class		0.997	1.184 +	1.825 **
Early Victimization		a	a	a
Subsequent Victimization		0.680 ***	0.809 *	0.706 **
Constant		3.320	2.651	20.326 ***

ll = -454.18; chi-square = 219.717; r-square = .195

+ p < .10; * p < .05; ** p < .01; *** p < .001

a – not enough observations in “1” category to estimate effect

Table 11b. Multinomial Logistic Regression Results (Odds Ratios reported), Females (N = 427)

Comparison Group	Base Outcome Group			
	Low Level Base	Late Starter Base	Adolescent Lim Base	Chronic Base
Late Starter				
Class	0.987		0.833	0.834
Single Parent	1.638		1.294	0.594
Family Transitions	1.114		0.990	1.189
Early Deviant Friends	1.064 +		0.989	0.957
Change in Deviant Friends	1.100 ***		1.028	0.984
Early Discrimination	1.046 +		0.994	0.895 **
Change in Discrimination	1.028		1.003	0.981
Early Authoritative Parenting	0.967		1.014	1.083 **
Change in Authoritative Parenting	0.957 **		0.999	1.001
Death of Relative or Friend	0.781		0.501 +	0.560
Subsequent Deaths	0.889		0.999	0.841 +
Move before age 10	2.948 **		1.886 *	2.205 +
Total residential moves	1.156 +		0.974	0.904
Early Advanced Class	1.102		0.865	0.541
Later School - Adv Class	1.003		1.187 +	1.829 **
Early Victimization	a		a	a
Subsequent Victimization	1.470 ***		1.189 *	1.037
Constant	0.366		0.969	7.432 *

ll = -454.18; chi-square = 219.717; r-square = .195

+ p < .10; * p < .05; ** p < .01; *** p < .001

a – not enough observations in “1” category to estimate effect

Table 11c. Multinomial Logistic Regression Results (Odds Ratios reported), Females (N = 427)

Comparison Group	Base Outcome Group			
	Low Level Base	Late Starter Base	Adolescent Lim Base	Chronic Base
Adolescent Limited				
Class	1.185	1.201		1.001
Single Parent	1.266	0.773		0.459 +
Family Transitions	1.125	1.01		1.201
Early Deviant Friends	1.076 *	1.012		0.968
Change in Deviant Friends	1.070 **	0.973		0.957 +
Early Discrimination	1.052 *	1.006		0.900 **
Change in Discrimination	1.026	0.997		0.978
Early Authoritative Parenting	0.953 *	0.986		1.067 **
Change in Authoritative Parenting	0.958 **	1.001		1.002
Death of Relative or Friend	1.559	1.996 +		1.119
Subsequent Deaths	0.890	1.001		0.841 *
Move before age 10	1.563	0.530 *		1.169
Total residential moves	1.188 *	1.027		0.929
Early Advanced Class	1.274	1.156		0.626
Later School - Adv Class	0.845 +	0.842 +		1.541 *
Early Victimization	a	a		a
Subsequent Victimization	1.236 *	0.841 *		0.872 +
Constant	0.377	1.032		7.668 **

ll = -454.18; chi-square = 219.717; r-square = .195

+ p < .10; * p < .05; ** p < .01; *** p < .001

a – not enough observations in “1” category to estimate effect

Table 11d. Multinomial Logistic Regression Results (Odds Ratios reported), Females (N = 427)

Comparison Group	Base Outcome Group			
	Low Level Base	Late Starter Base	Adolescent Lim Base	Chronic Base
Chronic				
Class	1.183	1.199	0.999	
Single Parent	2.759 *	1.684	2.180 +	
Family Transitions	0.937	0.841	0.833	
Early Deviant Friends	1.111 **	1.045	1.033	
Change in Deviant Friends	1.118 ***	1.016	1.045 +	
Early Discrimination	1.168 ***	1.117 **	1.111 **	
Change in Discrimination	1.049 +	1.020	1.022	
Early Authoritative Parenting	0.893 ***	0.924 **	0.937 **	
Change in Authoritative Parenting	0.956 *	0.999	0.998	
Death of Relative or Friend	1.394	1.784	0.894	
Subsequent Deaths	1.058	1.190 +	1.189 *	
Move before age 10	1.337	0.454 +	0.855	
Total residential moves	1.279 *	1.106	1.077	
Early Advanced Class	2.036	1.847	1.598	
Later School - Adv Class	0.548 **	0.547 **	0.649 *	
Early Victimization	a	a	a	
Subsequent Victimization	1.417 **	0.964	1.146 +	
Constant	0.094 ***	0.135 *	0.130 **	

ll = -454.18; chi-square = 219.717; r-square = .195

+ p < .10; * p < .05; ** p < .01; *** p < .001

a – not enough observations in “1” category to estimate effect

APPENDIX A

ITEMS FOR SCALED VARIABLES

Delinquency Scale:

1. Thinking about your whole life, have you ever secretly stolen money or other things from your family or from other people you live with?
2. Have you ever shoplifted - that is, stolen something from a store when you thought no one was looking?
3. Have you ever stolen from anyone else when they weren't around or weren't looking?
4. Have you ever faked someone's name on a check or used someone's credit card without permission?
5. Have you ever snatched someone's purse or jewelry?
6. Have you ever held someone up or attacked somebody to steal from them?
7. Have you ever threatened someone in order to steal from them?
8. Have you ever gotten into trouble because you stayed out at night more than two hours past the time you were supposed to be home?
9. Have you ever run away from home overnight?
10. Have you ever lied to get money or something else you wanted?
11. Have you ever lied so that you wouldn't have to pay back money you owed, or to get out of something important you were supposed to do?
12. Have you lied to get something you wanted to get out of something in the last year?
13. Have you ever broken into a house, a building, or a car?
14. Have you ever broken something or messed up some place on purpose, like breaking windows, writing on a building, or slashing tires?
15. Have you ever broken or damaged somebody else's things on purpose?
16. Have you ever started a fire without permission?
17. Have you ever been physically cruel to an animal and hurt it on purpose?
18. Now I want to ask you about bullying - you know, hitting or threatening or scaring someone who is younger or smaller than you or somebody who won't fight back. Have you ever bullied someone in this way?
19. Have you ever threatened someone or frightened someone on purpose?
20. Have you ever been in a physical fight in which someone was hurt or could have been hurt?
21. Have you ever tried to hurt someone badly or been physically cruel to someone?
22. Have you ever hurt someone with a weapon like a bat, brick, broken bottle, knife, or gun?
23. Have you ever been expelled from school for misbehavior - that is, told that you could never go back to that school at all?

24. Have you ever been suspended from school for misbehavior – that is, told that you could not go back to school for at least a day?
25. Have you ever had an "in-school" suspension - that is, where you went to school but you weren't allowed to attend your usual classes?
26. Have you ever been fired from a job for fighting or stealing or breaking things on purpose or because you wouldn't do what you were asked to do?

Perceived Racial Discrimination

1. How often has someone said something insulting to you just because of your race or ethnic background? Is it...
 - 1 Never
 - 2 Once or twice
 - 3 A few times
 - 4 Frequently
2. How often has a store-owner, sales clerk, or person working at a place of business treated you in a disrespectful way just because of your race or ethnic background?
3. How often have the police hassled you just because of your race or ethnic background?
4. How often has someone ignored you or excluded you from some activity just because of your race or ethnic background?
5. How often has someone suspected you of doing something wrong just because of your race or ethnic background?
6. How often has someone yelled a racial slur or racial insult at you just because of your race or ethnic background?
7. How often has someone threatened to harm you physically just because of your race or ethnic background?
8. How often have you encountered people who are surprised that you, given your race or ethnic background, did something really well?
9. How often have you been treated unfairly just because of your race or ethnic background?
10. How often have you encountered people who didn't expect you to do well just because of your race or ethnic background?
11. How often has someone discouraged you from trying to achieve an important goal just because of your race or ethnic background?
12. How often have your close friends been treated unfairly just because of their race or ethnic background?
13. How often have members of your family been treated unfairly just because of their race or ethnic background?

Authoritative Parenting Scale:

Physical Hostility Items

1. When you do something wrong, how often does your primary caregiver spank you? Is it...
 - 1 Always
 - 2 Often
 - 3 Sometimes
 - 4 Never
2. When your primary caregiver disciplines you, how often does [HE/SHE] hit you with a belt, a paddle, or something else?

Emotional Hostility Items

1. During the past 12 months, how often did your primary caregiver...Get angry at you? Was it...
 - 1 Always
 - 2 Often
 - 3 Sometimes
 - 4 Never
2. During the past 12 months, how often did your primary caregiver...Get so mad at you that [HE/SHE] broke or threw things?
3. During the past 12 months, how often did your primary caregiver...Shout or yell at you because [HE/SHE] was mad at you?
4. During the past 12 months, how often did your primary caregiver...Threaten to hurt you physically?
5. During the past 12 months, how often did your primary caregiver...Criticize you or your ideas?
6. During the past 12 months, how often did your primary caregiver...Argue with you whenever you disagreed about something?
7. During the past 12 months, how often did your primary caregiver...Boss you around a lot?

Parental Warmth Items

1. During the past 12 months, how often did your primary caregiver...Let you know [HE/SHE] really cares about you?
 - 1 Always
 - 2 Often
 - 3 Sometimes
 - 4 Never

2. During the past 12 months, how often did your primary caregiver...Listen carefully to your point of view?
3. During the past 12 months, how often did your primary caregiver...Act supportive and understanding toward you?
4. During the past 12 months, how often did your primary caregiver...Act loving and affectionate toward you?
5. During the past 12 months, how often did your primary caregiver...Push, grab, hit, or shove you?
6. During the past 12 months, how often did your primary caregiver...Have a good laugh with you about something that was funny?
7. During the past 12 months, how often did your primary caregiver...Let you know that [HE/SHE] appreciates you, your ideas or the things you do?
8. During the past 12 months, how often did your primary caregiver...Tell you [HE/SHE] loves you?
9. During the past 12 months, how often did your primary caregiver...Understand the way you feel about things?

Parental Monitoring Items

1. How often does your primary caregiver know what you do after school? Is it...
 - 1 Always
 - 2 Often
 - 3 Sometimes
 - 4 Never
2. How often does your primary caregiver know where you are and what you are doing? Is it...
3. How often does your primary caregiver know how well you are doing in school. Is it ...
4. How often does your primary caregiver know if you do something wrong? Is it....

Delinquent Activity of Friends Scale:

1. During the past 12 months, how many of your close friends have...Run away from home? Is it...
 - 1 None of them
 - 2 Some of them
 - 3 All of them
2. During the past 12 months, how many of your close friends have...Skipped school without an excuse?
3. During the past 12 months, how many of your close friends have...Purposely damaged or destroyed property that did not belong to them?
4. During the past 12 months, how many of your close friends have...Stolen something worth less than \$25?

5. During the past 12 months, how many of your close friends have...Stolen something worth \$25 or more?
6. During the past 12 months, how many of your close friends have...Gone joyriding, that is, taken a motor vehicle, such as a car or motorcycle, for a ride or drive without the owner's permission?
7. During the past 12 months, how many of your close friends have...Hit someone with the idea of hurting them?
8. During the past 12 months, how many of your close friends have...Attacked someone with a weapon or with the idea of hurting them?
9. During the past 12 months, how many of your close friends have...Used a weapon, force, or strong-arm methods to get money or other things from people?
10. During the past 12 months, how many of your close friends have...Used tobacco (cigarettes, smokeless tobacco, etc.)?
11. During the past 12 months, how many of your close friends have...Used alcohol (beer, wine, bourbon, vodka, etc.)?
12. During the past 12 months, how many of your close friends have...Used illegal drugs like marijuana, hashish, LSD, cocaine, downers, crack, Ecstasy, or methamphetamines (speed, crank, ice, crystal)?
13. During the past 12 months, how many of your close friends have...Used prescription drugs for fun or to get "high" without a doctor's prescription?
14. During the past 12 months, how many of your close friends have...Used inhalants such as solvents, gasoline, rush, or glue?
15. During the past 12 months, how many of your close friends have...Used nonprescription drugs for fun or to get "high," like Vivarin, No Doz, or diet aids?
16. During the past 12 months, how many of your close friends have...Used a needle to inject drugs for fun or to get "high?"
17. During the past 12 months, how many of your close friends have...Gotten high using drugs of some kind?
18. During the past 12 months, how many of your close friends have...Drunk a lot of alcohol - 3 or more drinks at one time?