

The Effects of Adverse Childhood Experiences, Delinquency Involvement,
and Child Welfare Interventions on Adult Criminal Behavior: A Latent Class Analysis

by

Nana Adwoa Ahenkan Agyapong

A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Approved March 2025 by the
Graduate Supervisory Committee:

Michael D Reisig, Chair
Edward Maguire
Cody Telep

ARIZONA STATE UNIVERSITY

May 2025

ABSTRACT

This study examines the differential impact of childhood pathways, characterized by varying levels of trauma and risk, on adult criminal behavior. Using a prospective cohort design, this research follows individuals with documented cases of childhood physical abuse and neglect, delinquency involvement, and recipients of child welfare interventions and a matched control group with no such history. The study employs latent class analysis (LCA) to identify distinct developmental childhood pathways and examines how these pathways correspond to adult criminal behavior. The findings help define four unique latent classes. These classes are the Safe and Compliant class consisting of individuals with minimal neglect, abuse, and delinquency involvement, with no formal interventions; the Neglected and Delinquent class, which experiences high neglect and some physical abuse, exhibits high delinquency and receives no formal interventions; the Harmed and Harming class which faces significant childhood adversity, engages in frequent delinquency, and has the highest levels of formal interventions; the Harmed and Helped class which also experiences high childhood adversity but has minimal delinquency involvement, with frequent formal interventions. The results from the bivariate analyses show that individuals in the Harmed and Harming and Neglected and Delinquent groups exhibited higher rates of both violent and nonviolent crime in adulthood. In contrast, those in the Harmed and Helped and Safe and Compliant groups had lower rates of criminal involvement in adulthood. By linking specific pathways to adult criminal outcomes, this research contributes to a broader literature on evidence-based strategies for childhood protection strategies.

Keywords: childhood maltreatment, delinquency, life-course criminology, latent class analysis, juvenile justice interventions.

DEDICATION

I dedicate this thesis to my family and God. To my family, whose unwavering love, support, and sacrifices have guided me through every challenge—this achievement would not have been possible without you. To God for His grace, strength, and guidance throughout this journey.

ACKNOWLEDGMENTS

I want to express my deepest gratitude to my family for their unwavering support, encouragement, and sacrifices throughout this journey. Your belief in me has been my greatest source of strength.

I am profoundly grateful to my advisor, Professor Michael Reisig, for his invaluable guidance, mentorship, and constructive feedback. His expertise and support have been instrumental in shaping this research and my academic growth. I also extend my sincere appreciation to my committee members, whose insights, feedback, and encouragement have been essential in refining this work. Your dedication and expertise have strengthened this research, and I am truly grateful for your time and commitment.

A special thank you to Olivia Shaw and Dennis Sarpong, whose support, and insightful discussions have been invaluable throughout my studies. Your encouragement and assistance have made this journey more enriching and fulfilling. Additionally, I am grateful to Professor Alex Osei-Kojo whose tremendous support and advice have been instrumental in my journey. I am also grateful to my colleagues, friends, and mentors, who have supported me, shared knowledge with me, and encouraged me. Your contributions have greatly enriched my academic experience.

Finally, I thank God for granting me the wisdom, resilience, and perseverance to complete this thesis.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	VII
CHAPTER	
1 INTRODUCTION	1
Background and Rationale.....	1
Research Context and Objectives	2
Significance of the Study	3
Structure of the Thesis	3
2 LITERATURE REVIEW	5
Introduction.....	5
Adverse Childhood Experiences.....	5
ACESs and Traditional Theories of Crime.....	8
Moffitt's Developmental Taxonomy and ACEs.....	10
ACEs/Delinquency Pathways and Adult Crime	13
Potential for Intervention	16
Conclusion	19
3 METHOD	22
Participants.....	22
Procedures.....	24

CHAPTER	Page
Variables	25
Analytic Approach	26
4 RESULTS	28
Introduction.....	28
Identifying Childhood Pathways.....	29
Childhood Pathways and Adult Criminal Involvement.....	33
Conclusion	38
5 DISCUSSION	40
Introduction.....	40
Implications for Theory	40
Implications for Policy and Practice	44
Conclusion	49
REFERENCES	50

LIST OF TABLES

Table	Page
1. Sample Characteristics.....	22
2. Number of Latent Classes.....	30
3. Class Composition	32
4. Cross-tabulation Analysis for Childhood Pathways and Adult Violent Criminal Involvement	34
5. Cross-tabulation Analysis for Childhood Pathways and Adult Nonviolent Criminal Involvement	36
6. Demographic Profiles for Childhood Pathways	38

CHAPTER 1

INTRODUCTION

Background and Rationale

Adverse childhood experiences (ACEs) are traumatic events occurring from birth to 17 years of age. These experiences can take various forms, including physical, emotional, or sexual abuse and neglect (Borja et al., 2019). Such experiences are significant because they often shape individuals' developmental paths and long-term life outcomes (Webster, 2022). These early adversities can disrupt children's emotional, psychological, and social development, potentially resulting in negative effects that may persist into adolescence and adulthood (UNICEF, 2019).

Research has consistently shown that ACEs influence functional impairments, neurological development, attachment, mental health disorders, related symptoms, and substance use, which impact mood regulation, responses to stimuli, anxiety, and various neurological functions tied to personal development (De Bellis, 2002; Felitti et al., 1998; Widom, 1989). One concerning outcome is the increased likelihood of criminal activity in adulthood. Empirical evidence indicates that ACE-associated risk factors correlate with adult incarceration (Smith & Thornberry, 1995; Widom, 2006; Widom & Maxfield, 2001). Studies also reveal that individuals who experience abuse or neglect in childhood are at a higher risk for juvenile delinquency and adult criminal involvement (Smith & Thornberry, 1995; Widom, 1989). These findings highlight the critical need to understand the mechanisms through which ACEs influence adverse behavioral outcomes and to identify factors, such as child welfare interventions, that may help mitigate these risks.

This study will employ Latent Class Analysis (LCA) to identify subgroups within the population based on their ACE exposure, experiences with child welfare interventions, and delinquency involvement aiming to cultivate a more nuanced understanding of the pathways to adult criminal behavior. By doing so, this research seeks to enhance the broader understanding of the role ACEs, childhood interventions, and delinquent involvement cluster together to influence criminal behavior in later life.

Research Context and Objectives

This study uses data from the *Child Abuse, Neglect, and Violent Criminal Behavior in a Midwest Metropolitan Area of the United States, 1967-1988*, which is available via the National Archive of Criminal Justice Data at the Inter-university Consortium for Political and Social Research (ICPSR 9480; Widom, 2006). This file includes data on abuse and neglect incidents, family and perpetrator characteristics, juvenile and adult arrest records, welfare intervention, and demographic information.

Using LCA and bivariate analysis, this study will pursue two objectives:

1. To identify distinct developmental pathways among children experiencing varying levels of neglect, physical abuse, delinquency involvement, and child welfare interventions.
2. To examine how these childhood pathways influence subsequent adult criminal involvement.

Finally, the results from the analyses will be used to suggest intervention and prevention strategies with the aim of reducing the link between at-risk pathways and adult criminal behavior.

Significance of the Study

This research is significant for several reasons. First, this study will assess within-group variation among children, including those with ACEs using LCA, a robust statistical technique that allows for the identification of unobserved subgroups (or “classes”) within populations. This approach will yield meaningful classes (conceived as “pathways”) that can be used to understand variations in the prevalence of criminal behavior in adulthood. Second, the data file is longitudinal in nature which allows for statistical analyses of sequenced events, thus yielding more reliable and valid findings. Third, by focusing on both child welfare interventions and adult criminal behavior, the study will shed light on the utility of interventions early in the life course. The identification of distinct subgroups and the identification of their specific needs will help tailor interventions and prevention efforts to effectively reduce adult crime, promoting better outcomes for individuals who have experienced childhood abuse and/or neglect.

Structure of the Thesis

The thesis is organized into five chapters. This chapter introduced and discussed the background of the study. This chapter also identified the study’s objectives and highlighted its significance. The theoretical and research literature is reviewed in Chapter 2. The focus of the review will be on the relationship between adverse childhood experiences, delinquency involvement, and adult criminal behavior. Chapter 3, entitled Methodology, describes the data, the variables used in the study, and the statistical methods that will be employed. The results from the LCA and bivariate analyses are presented in Chapter 4. Finally, Chapter 5 will discuss the key findings in more detail, their implications for future research and practice, and identify potential intervention and

prevention strategies to reduce the effect of ACEs and juvenile delinquency on adult criminal activity. Finally, this chapter will also discuss the limitations of the study and outline some promising avenues for future research in this area.

By investigating the intricate links between adverse childhood experiences, delinquency, child welfare interventions, and adult criminal behavior using LCA and bivariate techniques, this thesis aims to advance a deeper understanding of the ways that early life experiences influence adult crime and inform strategies to effectively support at-risk youth.

CHAPTER 2

LITERATURE REVIEW

Introduction

Harmful events experienced during childhood, such as abuse and neglect, are critical risk factors influencing negative behavioral and psychological outcomes (Anda et al., 2006; Felitti et al., 1998; Widom & Czaja, 2012). A large body of research has demonstrated that early exposure to multiple forms of adversity can significantly increase the likelihood of violating criminal legal statutes (Baglivio et al., 2014; Ford et al., 2007; Lansford et al., 2002). However, the pathways through which traumatic childhood experiences influence these outcomes are complex. Understanding the ways early hardships influence criminal involvement in adulthood is critical for developing effective intervention strategies. By synthesizing the current knowledge, this review aims to provide a comprehensive understanding of how early problems shape behavioral trajectories and to identify gaps in the research that this thesis project will address.

Adverse Childhood Experiences

A broad range of traumatic events that occur during childhood are included under the heading of adverse childhood experiences (ACEs). Importantly, these events have profound and long-lasting deleterious effects on the psychological, physical, and social well-being of children as they mature (Jones, et al., 2020). Originally conceptualized by the Centers for Disease Control and Prevention (CDC) in the late 1990s, ACEs encompass various forms of abuse, neglect, and household dysfunction that a child may be exposed to before the age of 18 (Felitti et al., 1998). These experiences include

physical abuse (being hit, beaten, or otherwise physically harmed by a caregiver), emotional abuse (being subjected to verbal abuse, threats, or other forms of psychological maltreatment), sexual abuse (any unwanted or inappropriate sexual contact experienced by a child), emotional neglect (a lack of emotional support, love, and validation from caregivers), physical neglect (the failure to provide basic physical needs, such as food, clothing, and shelter), and household dysfunction (exposure to domestic violence, parental substance abuse, mental illness, divorce, or a family member's incarceration) (Mehta et al., 2023).

Early ACEs research explored the cumulative impact of multiple adversities on a range of outcomes, revealing a strong, graded relationship between the number of ACEs experienced and a wide array of negative health outcomes in adulthood (Felitti et al., 1998). These included higher rates of chronic diseases, such as heart disease, diabetes, and cancer, as well as mental health issues (e.g., depression, anxiety, and suicidality). This research highlighted the concept of "toxic stress," where the repeated activation of the stress response system due to ACEs can lead to long-term physiological and psychological damage. In addition to physical and mental health outcomes, early studies also investigated the effects of ACEs on educational achievement, employment stability, and social functioning. For instance, children with high ACE exposure were more likely to have poor academic performance, lower educational attainment, and difficulties in maintaining employment later in life (Farrington, et al., 2009). These findings underscored some of the ways ACEs impact life trajectories.

Contemporary researchers have used advanced quantitative methods, such as latent class analysis (LCA), to identify unobserved subgroups within populations based

on individuals' responses to multiple observed variables to better understand the role of ACEs during the life course. This statistical technique allows researchers to categorize individuals into distinct classes or typologies based on their patterns of ACEs, providing insights into how the combinations of adversities are predictive of negative outcomes (Lanza & Rhoades, 2013). Traditional approaches treat ACEs as unique incidents or the sum of their occurrence. However, it is important to understand that many childhood adversities co-occur and that specific patterns have unique implications for developmental outcomes (Lanza et al., 2011). This differentiation allows for a more precise understanding of the unique combinations of adversities individuals face and helps researchers to understand how groups differ behaviorally over the long run. Identifying distinct profiles can also inform the development of targeted interventions.

Understanding that different subgroups may require different types of support may require practitioners to tailor interventions that address group-specific needs. For instance, children exposed to multiple forms of abuse may benefit from intensive trauma-focused therapy, while those exposed primarily to household dysfunction may benefit from interventions that address family dynamics and support (Lanier et al., 2018; Marie-Mitchell & Kostolansky, 2019; Wade et al., 2014). LCA studies reveal that ACEs do not occur in isolation but rather in distinct patterns or profiles. One latent class might be characterized by high exposure to household dysfunction (e.g., parental substance abuse and domestic violence), while another might be defined by direct experiences of abuse (Lanza et al., 2011). Additionally, experiences may also be comprised of multiple, overlapping forms of abuse and neglect (Armour et al., 2013). The ability to identify

these typologies is crucial for understanding how best to target interventions and long-term consequences.

LCA can also be applied longitudinally to examine how latent classes of ACEs predict outcomes over time. This approach helps to identify the developmental trajectories associated with different ACE profiles and the persistence of their impact into adulthood (Rogosch et al., 2011). Longitudinal studies underscore the persistent impact of ACEs on behavioral trajectories, highlighting the importance of early intervention. In the realm of criminal behavior research, LCA has been particularly valuable for identifying how different patterns of ACEs are linked to violations of criminal statutes later in life (Ford et al., 2010).

The conceptual framework of ACEs has evolved from early research that demonstrated the cumulative impact of multiple adversities on a broad range of non-criminal outcomes to more sophisticated contemporary analyses using LCA. This modern approach has provided deeper insights into how different combinations of ACEs contribute to various negative outcomes, emphasizing the importance of understanding ACEs in a holistic and multifaceted manner. By identifying distinct ACE profiles, contemporary research has enhanced our ability to develop targeted interventions that address the specific needs of at-risk groups based on their unique experiences, ultimately aiming to mitigate the long-term consequences of childhood adversity.

ACEs and Traditional Theories of Crime

ACEs have been studied in relation to their impact on delinquent behavior, with multiple criminological theories offering insights into this connection. Early theories, such as the social learning theory suggest that children exposed to violence or criminal

behavior within the home or community may internalize these behaviors, leading to an increased likelihood of delinquency (Bandura, 1977). According to this theory, the environment plays a crucial role in shaping behavior, and children who witness or experience violence are more likely to mimic such behaviors (also see Akers, 2010).

Another relevant explanatory framework is the general strain theory (GST), which posits that individuals who experience significant stressors or strains, such as ACEs, are more likely to engage in delinquent behavior as a coping mechanism (Agnew, 1992). GST highlights how negative emotions resulting from criminogenic strain, such as anger and frustration, can drive individuals toward criminal behavior as a way to alleviate the pressure these feelings cause. Children who face parental rejection, abuse, neglect, or household dysfunction may experience intense negative emotions, leading to a higher risk of delinquency.

Social control theory focuses on the breakdown of social bonds as a key factor in delinquency (Hirschi, 1969). This theory suggests that strong, positive relationships with family, school, and community serve as protective factors against delinquency. However, ACEs often disrupt these bonds, weakening the individual's connection to societal norms, and ultimately increasing the likelihood of engaging in criminal activities.

Routine activities theory (RAT) contends that crime occurs when three elements converge: a motivated offender, a suitable target, and the absence of capable guardianship (Cohen & Felson, 1979). ACEs can contribute to delinquency by increasing the likelihood that an individual will be a motivated offender. For instance, children exposed to abuse or neglect may develop aggressive tendencies or a disregard for societal norms, making them more likely to engage in criminal activities when the opportunity arises.

Additionally, children from dysfunctional households may lack proper supervision, increasing their exposure to criminogenic environments where suitable targets are plentiful, and capable guardianship is minimal. This theory underscores the role of environmental factors and daily routines in facilitating delinquency, particularly for those already at risk due to ACEs.

Finally, self-control theory posits that the inability to regulate one's thoughts, emotions, and behaviors is the primary cause of criminal behavior (Gottfredson & Hirschi, 1990). This theory suggests that individuals with low self-control are more likely to engage in impulsive, risky, and antisocial behaviors, including crime and delinquency. ACEs are significant in this context because they can hinder the development of self-control during childhood. For example, children who experience inconsistent or harsh discipline, lack of supervision, or emotional neglect may fail to develop the necessary self-regulation skills to resist criminal temptations. This lack of self-control, combined with exposure to criminogenic environments, can lead to increased delinquency. Self-control theory highlights the importance of early childhood experiences in shaping behavioral tendencies that persist throughout life.

Moffitt's Developmental Taxonomy and ACEs

Among the various theories linking ACEs to crime, Moffitt's (1993) developmental taxonomy stands out as a particularly influential framework. Moffitt establishes that there are two distinct types of offenders: Life-course persistent (LCP) offenders and adolescence-limited (AL) offenders.

Life-Course Persistent Offenders. Moffitt (1993) argues that LCP offenders are individuals who begin exhibiting antisocial behavior at an early age, often in childhood,

and continue to engage in criminal activities throughout their lives. They are comparatively small in number, unlike the second group. She suggests that the origins of LCP offending can be traced back to a combination of neuropsychological deficits and adverse environmental conditions experienced during early childhood, including parental abuse, neglect, and household dysfunction. Moffitt argues that certain children are born with or develop neuropsychological deficits that make them more susceptible to antisocial behavior. These deficits might include cognitive impairments, hyperactivity, or poor emotional regulation—traits that can be exacerbated by ACEs. For instance, a child who experiences physical abuse might suffer from trauma that impacts brain development, leading to difficulties in impulse control and decision-making. These neuropsychological challenges, combined with a lack of supportive parenting or positive social environments, set the stage for the development of persistent antisocial behavior (De Bellis & Zisk , 2014).

Moffitt's (1993) theory highlights the concept of cumulative disadvantage, where early behavioral problems caused by neuropsychological deficits and ACEs lead to a series of negative outcomes, such as academic failure, peer rejection, and involvement in deviant peer groups. These experiences reinforce and exacerbate antisocial behavior, creating a self-perpetuating cycle that is difficult to break (Moffitt 1993). As LCP offenders grow older, their opportunities for positive social engagement diminish, and they become increasingly entrenched in a criminal lifestyle. Moffitt emphasizes that the LCP pathway is the result of an interaction between individual characteristics (e.g., neuropsychological deficits) and environmental factors (e.g., ACEs). Children who are born with vulnerabilities may be particularly sensitive to adverse environments, where

ACEs serve as catalysts for the development of a persistent pattern of delinquency. These individuals often face multiple ACEs, such as growing up in a violent household, experiencing neglect, and living in poverty, all of which compound their risk of becoming life-course persistent offenders.

Adolescence-Limited Offenders. In contrast to LCP offenders, Moffitt (1993) argues that AL offenders engage in delinquent behavior primarily during adolescence. AL offenders typically do not exhibit antisocial behavior in childhood, and their delinquency is usually limited to the adolescent period, after which they desist as they transition into adult roles. While ACEs are not as directly implicated in the development of AL offending as they are with LCP offending, they can still play a significant role. Moffitt explains that AL offenders often engage in delinquency as a form of social mimicry, imitating the behaviors of their LCP peers. Adolescence is a time when individuals seek autonomy and experiment with different identities, and for some, delinquency can be a way to assert independence or gain status among peers. ACEs may exacerbate the pressures and challenges of adolescence, making some individuals more likely to adopt delinquent behaviors temporarily. For example, a teenager experiencing parental neglect or family conflict might turn to delinquent peers for social support and validation, engaging in criminal activities as a way to fit in.

In conclusion, Moffitt's (1993) theory offers a nuanced understanding of how ACEs contribute to different patterns of delinquency and crime in adulthood. For LCP offenders, ACEs are central to the development of persistent antisocial behavior, acting as both a trigger for neuropsychological deficits and a source of ongoing environmental stressors that reinforce delinquency and adult criminality. The cumulative impact of

multiple ACEs creates a trajectory of disadvantage that is difficult to alter without significant intervention. For AL offenders, ACEs can serve as a catalyst for delinquency during adolescence, although the influence of ACEs is more transient and, as a result, less likely to lead to long-term criminal behavior. The experience of ACEs during childhood may exacerbate the frustrations of adolescence, making delinquent behavior more appealing as a temporary coping mechanism or form of social rebellion.

Moffitt's (1993) developmental taxonomy underscores the importance of early intervention, particularly for those at risk of becoming LCP offenders. By addressing the neuropsychological deficits and environmental challenges posed by ACEs, it may be possible to alter the trajectory of children who are otherwise at high risk of persistent delinquency. Additionally, understanding the different pathways to delinquency highlighted by Moffitt can inform more targeted approaches to prevention and rehabilitation, recognizing that not all delinquent behavior stems from the same underlying causes.

ACEs/Delinquency Pathways and Adult Crime

ACEs have been widely recognized as significant risk factors for various negative life outcomes, including delinquency and adult criminal behavior. Extensive research has established the connection between ACEs and the development of delinquent behavior in youth, which often persists into adulthood, leading to chronic involvement in criminal activities (Anda et al., 2006; Felitti et al., 1998; Widom & Czaja, 2012). This section examines the pathways through which ACEs contribute to delinquency and adult crime, with a primary focus on Moffitt's developmental taxonomy.

Moffitt's (1993) developmental taxonomy (1993) offers one of the most comprehensive explanations for the pathways linking ACEs to delinquency and adult crime. Moffitt's developmental taxonomy provides a nuanced framework for understanding how ACEs contribute to different pathways. Her two primary offender groups—LCP and AL—represent distinct developmental trajectories of antisocial behavior. Central to her theory is the assertion that the interaction of neuropsychological deficits and adverse environmental influences—such as ACEs—determines the nature and persistence of antisocial behavior.

For LCP offenders, Moffitt (1993) posits that ACEs significantly impact early brain development and behavior, setting the stage for a persistent antisocial trajectory. These individuals often experience multiple ACEs that disrupt normative development, leading to neuropsychological deficits like impaired executive functioning, poor impulse control, and emotional dysregulation. These deficits are typically evident in early childhood and are exacerbated by adverse social contexts, including exposure to poverty, parental psychopathology, and inadequate parenting (Moffitt et al., 2002).

Research findings from Moffitt (1993) have shown that LCP offenders frequently exhibit neurodevelopmental issues, such as lower IQ, attention deficits, and language delays, which are compounded by environmental risks associated with ACEs. The cumulative impact of these biological and environmental factors creates a pathway where children develop maladaptive coping strategies and aggressive behaviors that become entrenched over time. As these behaviors persist, they lead to academic failure, peer rejection, and continued exposure to deviant peer groups, reinforcing a cycle of antisocial behavior that extends into adulthood (Moffitt, 2006).

Moffitt's (1993) findings suggest that LCP offenders are often caught in a self-perpetuating cycle of adversity and maladaptation. For example, children who experience ACEs may display conduct problems that provoke negative responses from caregivers and teachers, resulting in punitive rather than supportive interventions. These responses can further entrench feelings of rejection and mistrust, intensifying antisocial tendencies.

In contrast to LCP, AL offenders are those whose delinquent behavior is largely confined to adolescence. While AL offenders may also experience ACEs, their behavior is more strongly linked to normative developmental processes, such as the desire for autonomy and peer acceptance. Moffitt's (1993) research indicate that AL offenders often engage in delinquency as a temporary response to the "maturity gap," where adolescents experience biological maturity without corresponding social privileges or responsibilities.

For AL offenders, the connection between ACEs and delinquency is less about entrenched neuropsychological deficits and more about social mimicry and peer influence. Adolescents exposed to ACEs may be more susceptible to engaging in risk-taking and antisocial behavior due to impaired social learning or weakened attachment bonds. However, unlike LCP offenders, AL offenders typically desist from delinquent behavior as they transition into adulthood and assume social roles that discourage continued antisocial conduct (Moffitt, 2006).

Moffitt's (1993) theory illustrates that while both LCP and AL offenders may have exposure to ACEs, the pathways differ substantially. For LCP offenders, ACEs create a foundational vulnerability that leads to persistent offending. In contrast, for AL offenders, ACEs may exacerbate developmental challenges that contribute to temporary delinquency but do not result in lifelong patterns of antisocial behavior. This distinction

has important implications for intervention. Moffitt's findings underscore the need for early, targeted interventions for those with multiple ACEs to address neuropsychological deficits and provide supportive environments that mitigate the effects of these early adversities. For LCP offenders, interventions may need to focus on cognitive and behavioral therapies, family support services, and educational programs designed to improve social and emotional skills. Conversely, for AL offenders, strategies might prioritize enhancing peer relations, promoting prosocial behaviors, and providing opportunities for meaningful engagement with social institutions such as schools and community organizations (Moffitt, 2006).

In conclusion, the connection between ACEs and crime is well-documented, and Moffitt's (1993) developmental taxonomy provides a framework for understanding how these early adversities contribute to different patterns of offending behavior. By distinguishing between LCP and AL offenders, Moffitt's theory highlights the importance of early intervention for those at risk of persistent delinquency and underscores the need for targeted strategies to address the effects of ACEs across the life course.

Potential for Intervention

Based on Moffitt's (1993) developmental taxonomy and the use of latent class analysis (LCA), this study aims to identify targeted interventions that address the pathways from ACEs/delinquency to adult crime. The primary goal of these interventions would be to disrupt the at-risk pathways by targeting the specific needs of different groups and preventing the escalation from childhood adversity and delinquent involvement to crime in adulthood.

For life-course-persistent (LCP) offenders, Moffitt's theory highlights the need for early interventions that focus on both the neuropsychological deficits and the environmental factors contributing to antisocial behavior. Given that LCP offenders often show signs of neurodevelopmental impairments compounded by adverse childhood experiences, interventions could include early childhood programs that provide cognitive-behavioral therapy (CBT), social skills training, and parental support services. Programs like the Nurse-Family Partnership (Olds et al., 1998) offer a model where nurses visit at-risk families to provide parenting education, emotional support, and resource referrals, which could help mitigate the negative impacts of ACEs on brain development and social functioning. The LCA findings from this study could help identify specific subgroups of children who are at the greatest risk for LCP offending, allowing for targeted interventions that are tailored to their particular patterns of ACE exposure.

The pervasive impact of ACEs on developmental trajectories necessitates multifaceted interventions targeting both the immediate needs of at-risk children and the broader systemic issues perpetuating cycles of adversity and crime. Trauma-informed care is a leading approach that integrates the understanding of trauma into service delivery across sectors. This approach focuses on creating safe environments that help individuals rebuild trust and develop healthy coping mechanisms. Early implementation of trauma-informed interventions, such as cognitive-behavioral therapy (CBT), has shown promise in reducing symptoms of PTSD and anxiety in children with high ACE exposure, thus decreasing the likelihood of engaging in delinquent behavior (Kolko et al., 2011).

For adolescence-limited (AL) offenders, interventions might focus more on the social and environmental influences that drive temporary delinquency. Since AL offenders are primarily influenced by the desire to overcome the "maturity gap" and are responsive to peer dynamics, school-based programs that enhance prosocial peer interactions and provide meaningful opportunities for youth engagement could be effective. Programs such as Positive Action or Life Skills Training, which focus on social-emotional learning and peer influence management, could help reduce the likelihood of temporary delinquent behavior escalating into more serious criminality (Durlak et al., 2011). By using LCA to differentiate between those adolescents who are at higher risk due to combined ACE exposures, practitioners can better design and implement interventions that cater to those specific needs. Moreover, fostering supportive school climates through positive behavior reinforcement and peer mentoring can provide at-risk children with a sense of belonging, reducing their inclination toward delinquent peer groups (Jones et al., 2011).

Furthermore, Moffitt's taxonomy, combined with LCA analysis, could guide the development of family-centered interventions that address both the child and the family context. For example, Multisystemic Therapy (MST) has proven effective for youth exhibiting serious antisocial behavior by addressing the multiple systems surrounding the child, such as family, peers, school, and community (Henggeler et al., 1998). MST could be particularly beneficial for those identified as LCP offenders or for adolescents with a high co-occurrence of ACEs, as it targets the broader ecological context that perpetuates delinquent behavior. Programs that teach effective communication, stress management, and nonviolent discipline strategies can prevent child maltreatment and household

dysfunction (Prinz et al., 2009). For families already affected by ACEs, therapeutic interventions, such as family therapy, can help repair relationships and establish healthier interaction patterns, mitigating the intergenerational transmission of trauma (Gershoff, 2013).

Additionally, LCA can inform the creation of community-based programs aimed at improving socioeconomic conditions and reducing environmental risks associated with high ACE exposure. Community interventions that foster safe and supportive environments, provide access to mental health services, and facilitate social mobility can help mitigate the effects of ACEs (Sampson & Raudenbush, 1999). Programs like Communities That Care (CTC) use data-driven approaches to identify specific risk factors in communities and implement targeted prevention strategies, which could be fine-tuned using LCA findings from this study to focus on particular groups most affected by ACEs (Hawkins, et al., 2009)

At the policy level, interventions addressing systemic inequalities are essential in reducing ACEs. Policies promoting economic stability, access to quality healthcare, and educational equity can diminish the socioeconomic disparities that exacerbate childhood adversity (Shonkoff et al., 2012). Advocacy for increased funding for mental health services, early childhood education, and child protective services is crucial for preventing ACEs and mitigating their long-term impacts on delinquency and adult crime (Anda et al., 2006).

Conclusion

ACEs are widely recognized as significant risk factors influencing various negative outcomes throughout an individual's life, including physical health issues,

mental health disorders, and behavioral problems. Among these outcomes, a growing body of research has established a compelling link between ACEs and increased rates of delinquency and adult criminal behavior. This chapter provides a comprehensive review of the existing literature on the pathways from ACEs to delinquency, with a particular focus on Moffitt's (1993) developmental taxonomy. Theory and research suggest that childhood adversity can lead to delinquent behaviors through various mechanisms, such as emotional dysregulation, impaired social relationships, and neurodevelopmental deficits. However, Moffitt's approach offers a nuanced approach to understanding the ACE-delinquency pathway by categorizing offenders into two main groups: life-course-persistent (LCP) and adolescence-limited (AL) offenders. This theoretical framework suggests that the impacts of ACEs are differentiated by neuropsychological vulnerabilities and environmental factors, which interact to create distinct developmental pathways to delinquency and adult crime. Through the lens of Moffitt's taxonomy, this chapter examined how ACEs contribute to these divergent pathways, with an emphasis on the long-term implications for both LCP and AL offenders.

In addition, contemporary research using latent class analysis (LCA) has expanded our understanding of how different patterns and combinations of ACEs influence pathways to delinquency and adult criminality. LCA allows for the identification of distinct subgroups within the population based on their exposure to various ACEs, offering deeper insights into the heterogeneity of ACE experiences and their specific impacts on offending behavior.

This literature review by integrating findings from Moffitt's theory with contemporary research methodologies like LCA, sets the stage for a more targeted examination of

intervention strategies and policy implications that can disrupt the pathways from ACEs to criminal behavior.

CHAPTER 3

METHODS

Participants

The data used for this study are from an archived data file titled “Child Abuse, Neglect, and Violent Criminal Behavior in a Midwest Metropolitan Area of the United States, 1967-1988” (ICPSR 9480; Widom, 2006), which was obtained from the National Archive of Criminal Justice Data. Participants represented two groups: (1) individuals who were subjected to officially documented instances of child abuse (physical and/or sexual) and/or neglect from ages 0 to 11 years ($n = 908$), and (2) a control group without officially documented abuse/neglect histories ($n = 667$), although they may have unmeasured ACEs or unreported ACEs. Groups were matched in terms of sex, race, age, and socioeconomic status of the family.¹ For this study, the two groups were combined into one sample, where the total number of participants was 1,575.

The study comprised a total of 1,575 participants from the ages of less than 1 year to 11 years at the time of the study, of whom 908 (57.7%) were in the abuse/neglect group and 667 (42.3%) were in the control group. In terms of race, the majority of participants were White (66.7%), followed by Black (33.0%), and a small percentage identified as Hispanic (0.3%). Additionally, there were 15 cases where race information was not specified. The sample was relatively balanced in terms of gender, with 798

¹ The initial sample consisted of 2,623 children identified in cases involving adverse childhood experiences. However, some juvenile court records did not specifically pertain to ACEs, even though they were initially categorized as such. For instance, cases involving infant adoption, "involuntary" neglect alone, placement alone, and failure to pay child support were excluded from the sample (Widom, 1989). Additionally, cases of abused or neglected children who were adopted into different families, along with the four conditions mentioned, were also removed from the sample.

females (50.7%) and 777 males (49.3%). Regarding the control group, 229 participants were matched by birth records using the time of birth and hospital of birth of their abuse counterparts, while 438 individuals were matched by school records based on grade and elementary school of their abuse counterparts. These demographic characteristics provide a diverse and representative sample for analyzing the effects of abuse and neglect across different groups. Sample characteristics are summarized in Table 1.

Table 1

Sample Characteristics

	Frequency	Percent
Class		
Control	667	42.3
Abuse	908	57.7
Race/Ethnicity		
Black	515	32.7
White	1041	66.4
Hispanic	4	0.3
Not specified	15	1.0
Gender		
Female	798	50.7
Male	777	49.3
Group		
Birth	229	14.5
School	438	27.8

Procedures

The data for this study were collected using a prospective cohort design, including officially documented cases of physical abuse, sexual abuse, or neglect before age 12. Participants were initially sampled between 1967 and 1971. Official abuse and neglect records were obtained from the county juvenile court and juvenile probation department. Members of the control group were selected using school records and county birth records. The juvenile probation department records were also used to ensure the absence of abuse and neglect among control group members.

The data was collected prospectively from existing official records. The data collection took place from 1986 to 1988 for cases of abuse that took place between 1967 and 1971. This allowed for a longitudinal examination of the effect of abuse and neglect on behavior over time. The data were originally organized into five files, with each containing different information beneficial to the study. Data from these different files were organized into one data file for purposes of analysis. The data used in this study underwent a rigorous cleaning process to address missing data, inconsistencies, and potential errors. Cases with incomplete data were examined to determine whether they should be included or excluded from the analysis. This process also involved checking for duplication and ensuring the reliability of the information recorded.

To protect participant confidentiality, all identifying information was removed, and the data were anonymized before analysis by the original collectors of the data. Data were stored securely with restricted access to authorized research personnel only. All procedures complied with ethical guidelines and received approval from Arizona State University's Institutional Review Board.

Variables

This section details how the variables used in this study were operationalized and the coding schemes that were adopted.

Adult Criminal Behavior. The dependent variable for this study focuses on adult criminal offending, operationalized using detailed arrest and charge-level data. These two variables capture the nature of adult offending, categorized as violent criminal involvement and nonviolent criminal involvement. Each of these variables are binary coded (1 = yes, 0 = otherwise). Summary statistics indicated that a larger portion of the sample committed nonviolent crimes (22.3%) as adults when compared to violent offenses (18.3%).

Adverse Childhood Experiences (ACEs). ACEs were operationalized in this study using two main components: physical abuse and neglect. Two physical abuse variables were construct, each reflecting different levels of seriousness. The first variable, victim of serious physical abuse, included instances involving welts, sprains, dislocations, malnutrition, and broken bones. The second variable, victim of less serious physical abuse, captured instances of minor bruising or hitting. Both physical abuse variables were binary variable (1 = yes, 0 = no). One variable was used to capture instances of childhood neglect. Victim of neglect reflects instances where participants were subjected to either physical neglect (e.g., issues with hygiene, failure to provide medical attention), educational neglect, or emotional neglect. The neglect variable was also dummy coded (1 = yes, 0 = no). The summary statistics showed that neglect was most prevalent among sample members (44.9%), followed by serious physical abuse (8.1%), and less serious physical abuse (3.6%).

Juvenile Delinquency. Three juvenile delinquency variables were used in this study. The first variable, violent delinquency involvement, indicates whether sample members were arrested for a violent offense before age 18. A similar variable, nonviolent delinquency involvement, was constructed to reflect arrests for offenses that did not involve physical harm or the threat thereof. Finally, to capture high-frequency delinquent involvement, a third variable was constructed—frequent offender—that reflected sample members who had been arrested five or more times. All three of the juvenile delinquency variables were binary coded (1 = yes, 0 = no). Summary statistics indicated that nonviolent delinquency involvement (21.1%) was most common, followed by violent delinquency involvement (6.8%) and frequent offender (5%).

Child Welfare Interventions. Child welfare interventions were measured using two dichotomous variables: removed from home by authorities and placement in foster care. Removed from home was coded as 1 = yes and 0 = no, with 48.4% of the sample experiencing this intervention. Placement in foster care was similarly coded (1 = yes, 0 = no), with only 6.3% of participants placed in foster care. These variables capture formal intervention responses to childhood adversity, providing insight into the extent of system involvement among the sample.

Analytic Approach

The analysis is structured around two primary goals: (1) identifying meaningful childhood pathways (or classes), and (2) assessing the relationship between pathway membership and adult criminal involvement. Pathways that reflect different compositions of abuse, neglect, delinquency involvement, and child welfare interventions will be identified using latent class analysis (LCA), a statistical method for identifying

unobserved subgroups within a population based on individuals' responses to a set of observed variables. LCA is rooted in probabilistic modeling and assumes that the population is composed of a finite number of mutually exclusive and exhaustive latent classes, each with its own distinct probability distribution (Lanza et al., 2011). The primary goal of LCA is to uncover patterns of responses that can group individuals into classes that share similar underlying characteristics. These latent classes are not directly observed but are inferred from the data using maximum likelihood estimation. By modeling the probability of membership in each class and the conditional probabilities of the observed variables given the latent class, LCA accounts for heterogeneity in the data while minimizing measurement error (Lanza & Rhoades, 2013).

To assess the relationship between pathway membership and adult criminal involvement, cross-tabulation analyses were conducted. This statistical procedure is appropriate when investigating the relationship between two nominal-level measures (Weller et al., 2020). This technique will provide row percentages to be computed that will display the proportion of adult offenders for each pathway. Each assessment will be accompanied by a Pearson chi-square (χ^2) test that will indicate whether the relationship between pathway membership and adult criminal involvement is statistically significant. Finally, effect sizes will be evaluated using Cramer's V.

CHAPTER 4

RESULTS

Introduction

Harmful events experienced during childhood, such as physical abuse and neglect, are critical risk factors influencing negative behavioral and psychological outcomes (Anda et al., 2006; Felitti et al., 1998; Widom & Czaja, 2012). A substantial body of research has demonstrated that early exposure to multiple forms of adversity significantly increases the likelihood of delinquent and criminal involvement (Baglivio et al., 2014; Ford et al., 2007; Lansford et al., 2002). However, the pathways through which these adverse childhood experiences (ACEs) shape behavioral developmental trajectories are multifaceted, involving interactions between various factors.

This chapter presents the results from an analysis examining the long-term behavioral effects of pathways. Specifically, this analysis investigates how different childhood adversities, delinquent behavior, and child welfare interventions cluster together to form pathways, some of which are high-risk and marked by extreme adversity, and how these pathways are differentially related to criminal behavior in adulthood.

Using a variety of statistical procedures, this chapter empirically addresses two important questions:

1. What distinct pathways emerge among children experiencing varying levels of neglect, physical abuse, delinquency involvement, and child welfare interventions?

2. How do these childhood pathways differ in terms of subsequent adult criminal involvement?

The results presented in this chapter will contribute to a more comprehensive understanding of the developmental pathways linking childhood adversity and adult criminal behavior. These findings hold significant implications for intervention strategies aimed at promoting the well-being of children and public safety by reducing crime in adulthood.

Identifying Childhood Pathways

Eight binary-coded items were entered into a latent class analysis (LCA). The model fit statistics were evaluated for different possible solutions (e.g., three-class vs. four-class solution) to determine which one was best (see Table 2). The evidence suggests that a four-class solution was the best fit. This decision was based on a balance between model fit and the interpretability of the results². While the five-class solution showed a slightly better AIC relative to the four-class solution (AIC = 8033.692 for five-class and 8074.757 for four-class) and a slightly higher BIC (BIC = 8269.620 for five-class and 8262.427 for four-class), the five-class solution also involved a more complex model with 44 parameters, potentially resulting in model overfitting and decreased interpretability. By comparison, the four-class solution, with a relatively simpler model (35 parameters), provided a good fit to the data, as evidenced by the AIC and BIC values, which were sufficiently low while still offering meaningful class differentiation. The chi-

² The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) are statistical measures used for model selection, where AIC evaluates the goodness of fit while penalizing model complexity to balance accuracy and parsimony, and BIC applies a stronger penalty for complexity, particularly in larger samples, favoring simpler models.

squared and LR/Deviance statistics also suggested that the four-class solution struck an appropriate balance between model fit and parsimony, capturing important heterogeneity in the data without unnecessarily complicating the interpretation. Therefore, the four-class solution was selected because it best represents the complexity of the data while also providing clear and distinct childhood developmental pathways.

Table 2

Identifying Number of Latent Classes

Number of Latent Classes	Number of Cases	Number of Parameters Estimated	Residual D.F.	AIC	BIC	LR/Deviance	Chi-squared
2	1575	17	238	8548.273	8639.427	663.022	2097.996
3	1575	26	229	8143.618	8283.03	240.367	245.961
4	1575	35	220	8074.757	8262.427	153.505	174.626
5	1575	44	211	8033.692	8269.620	94.441	115.556

Table 3 presents the estimated class conditional probabilities for eight variables, broken down across the four latent classes identified in the analysis. It also provides the class proportions that indicate the size of each class. Class 1 represents the largest group, comprising approximately 45% of the sample. This class largely consists of individuals with relatively low neglect, abuse, and delinquent involvement. As expected, formal interventions to protect these individuals during childhood—removal from home and

foster care placement—were nonexistent. Given their low level of childhood adversity and minimal delinquency involvement, this pathway was deemed *Safe and Compliant*.

Class 2 represents one of the smaller groups, comprising approximately 5.8% of the sample. This group was characterized by relatively high probabilities of neglect and less serious physical abuse, although the latter is far less frequent than neglect. Serious physical abuse was not a defining characteristic of this class. This might help explain why formal interventions by authorities, such as removal from the home or foster care placement, were nonexistent among members of this group. Despite their low overall serious childhood adversity, individuals in this class exhibit relatively high levels of involvement in nonviolent and violent delinquency, and frequent offending. Accordingly, this class was named *Neglected and Delinquent*.

Class 3 also constitutes a small portion of the sample (5.8%). This group was characterized by a relatively high level of childhood adversity. In relative terms, the class conditional probabilities are high for neglect, less serious physical abuse, and serious physical abuse. Additionally, members of this group demonstrate substantial involvement in both violent and nonviolent delinquency. What is more, their delinquency involvement is frequent. This class also had the highest levels of formal interventions by authorities in terms of members being removed from their homes and members being placed in foster care. In sum, this group faced significant adverse childhood experiences and was actively involved in a variety of delinquent behaviors (both serious and less serious), all of which may have helped trigger formal intervention. All these factors lead to designating this class as *Harmed and Harming* (Daly, 1992).

Class 4 represents a substantial portion of the sample, accounting for approximately 43.4% of participants. Individuals in this class experienced higher levels of neglect, less serious physical abuse, and serious physical abuse. However, this group differs from class 3 (harmed and harming) in that, as a group, they show minimal involvement in violent delinquency and nonviolent delinquency, and very few members were involved in frequent offending. Similar to class 3, formal interventions to help these participants when they were children were common (e.g., nearly all of them were removed from their homes and a relatively large number were placed in foster care). Given the high level of childhood adversity, high level of intervention, and low delinquent involvement, class 4 was designated *Harmed and Helped*.

Table 3

Class Composition

Variable	Class Conditional Probabilities			
	Class 1	Class 2	Class 3	Class 4
Victim of Neglect	0.121	0.222	0.873	0.762
Victim of Serious Physical Abuse	0.021	0	0.094	0.152
Victim of Less Serious Physical Abuse	0.013	0.029	0.011	0.063
Violent Delinquency Involvement	0.012	0.412	0.572	0.012
Nonviolent Delinquency Involvement	0.061	1.000	1.000	0.157
Frequent Offender	0	0.341	0.498	0.002
Removed from Home by Authorities	0	0	1.000	0.981
Placed in Foster Care	0	0	0.151	0.126
Class Proportion	0.450	0.058	0.058	0.434

Childhood Pathways and Adult Criminal Involvement

Understanding the connection between childhood experiences and adult criminal behavior is central to developmental and life-course criminology. This section examines how childhood pathways, defined by exposure to neglect, abuse, delinquency involvement, and child welfare interventions, contribute to adult criminal behavior. Specifically, it explores the distinctions between adult violent crime and adult nonviolent crime, highlighting the unique patterns associated with each.

Table 4 shows the distribution of adult violent crime across the four classes. The Safe and Complaint group had the lowest involvement in adult violent crime, with only 13.0% of individuals in this group being arrested for violent offenses. This class represents individuals with minimal childhood adversity and delinquent behavior, suggesting a protective effect of a stable developmental pathway. The Harmed and Helped group also showed relatively low levels of violent crime in adulthood, with 17.5% of the sample being arrested for violent crimes. These individuals experienced childhood hardships but also appeared to benefit from child welfare interventions by authorities, potentially mitigating their risk for future violent behavior.

The Neglected and Delinquent group had a 45.1% arrest rate in adult violent crime, indicating that while their early delinquent behavior was primarily nonviolent, the risk for later violent behavior remained substantial. Finally, the Harmed and Harming group, which was comprised of individuals who experienced greater childhood adversities, had the highest arrest rate for adult violent crime at 54.8%. This class experienced significant neglect and system interventions, coupled with mixed violent and nonviolent offending during adolescence, strongly linking early adversity to later violent

outcomes. This group, despite receiving child welfare intervention, still did not refrain from delinquent behavior, perhaps because of the nature and timing of the intervention.

The chi-square test indicated that there was a correlation between adult violent crime involvement and childhood pathways: Pearson Chi-Square (χ^2) value was 113.156 ($p < .001$). Further, the symmetric measure (i.e., Cramer’s V) indicates that the magnitude of the association (0.268) was moderate. Together, these estimates highlight how early pathways, while not deterministic, significantly influence the likelihood of violent offending later in life.

Table 4

Cross-tabulation Analysis for Childhood Pathways and Adult Violent Criminal Involvement

Childhood Pathways	Adult Violent Criminal Involvement	
	% Yes	% No
Harmed and Harming	54.8	45.2
Neglected and Delinquent	45.1	54.9
Harmed and Helped	17.5	82.5
Safe and Compliant	13.0	87.0
	χ^2	113.156***
	Cramer’s V	.268

*** $p < .001$

This study also assessed the relationship between childhood pathways and adult nonviolent crime. Table 5 reveals that individuals classified as Safe and Complaint had the lowest arrest rates for nonviolent crime in adulthood. Specifically, only 16.9% of individuals in this class were arrested for a nonviolent adult offense, suggesting that a

lack of early adversity and stable life circumstances contribute significantly to their low-level criminal involvement. Conversely, individuals in the Harmed and Helped class displayed only slightly higher arrest rates for nonviolent crimes, with 21.0% having been arrested. While this group experienced relatively high childhood adversity, their pathways reflect a limited risk for nonviolent crime arrest in adulthood. Interestingly, members of the Neglected and Delinquent class exhibited higher rates of nonviolent crime arrests, with 54.9% having been arrested for such offenses. Finally, the Harmed and Harming class demonstrated the highest rate of nonviolent criminal arrest, with 57.5% of individuals having been arrested as adults for such behavior. This finding underscores the compounded risk this group faces, stemming from a combination of early adversity and diverse offending patterns.

The Pearson chi-square (χ^2) value of 109.161 ($p < .001$) demonstrates that the association between childhood pathways and nonviolent adult crime arrest was significant. Importantly, the validity of these tests was affirmed, as none of the expected cell counts fell below five cases. The strength of the relationship was further reflected in a symmetric measure: Cramer's V was 0.263, indicating a moderately strong relationship between childhood pathways and nonviolent adult offending. These measures of association serve to reinforce the importance of early developmental experiences in shaping adult behavioral outcomes.

Table 5

Cross-tabulation Analysis for Childhood Pathways and Adult Nonviolent Criminal Involvement

Childhood Pathways	Adult Nonviolent Criminal Involvement	
	% Yes	% No
Harmed and Harming	57.5	42.5
Neglected and Delinquent	54.9	45.1
Harmed ad Helped	21.0	79.0
Safe and Compliant	16.9	83.1
	χ^2	109.161***
	Cramer's V	.263

*** $p < .001$

Supplemental Assessment: Demographic Profiles for Childhood Pathways

Table 6 outlines the demographic profiles of individuals classified into distinct childhood pathways based on their early life experiences. These pathways—Harmed and Harming, Neglected and Delinquent, Harmed and Helped, and Safe and Compliant—are distinguished by their gender composition, average age, and racial make-up, offering insights into the diverse trajectories shaped by childhood adversity and resilience.

The Harmed and Harming pathway, characterized by significant childhood adversity and delinquent behavior, is comprised mostly of males (76.7%), with an average age of 5.88 years. Racially, this group consists of 45.2% White and 54.8% African American individuals, reflecting an overrepresentation of African Americans compared to some other pathways. Similarly, the Neglected and Delinquent pathway,

marked by childhood neglect and delinquency, also shows a high proportion of males (78.9%) and an average age of 5.76 years. Like the Harmed and Harming pathway, this group is also racially imbalanced. However, this class was made up of 54.9% White and 45.1% African American participants.

In contrast, the Harmed and Helped pathway, which includes individuals who experienced harm but benefited from protective interventions or resilience, exhibited a substantially lower male proportion (46.9%) and a younger average age of 5.59 years. This group was predominantly White (71.1%) with 26.3% African American representation, indicating distinct racial and gender-based dynamics compared to the more adversity-laden pathways. Finally, the Safe and Compliant pathway, characterized by minimal childhood adversity and low delinquency, exhibited the lowest male representation (46.1%) and the youngest average age of 5.39 years. This group was 64.6% White and 35.3% African American, suggesting a slightly more balanced racial composition than the Harmed and Helped pathway.

Table 6*Demographic Profiles for Childhood Pathways*

Childhood Pathways	Male % Yes	Age Mean	White % Yes	African American % Yes
Harmed and Harming	76.7	5.88	45.2	54.8
Neglected and Delinquent	78.9	5.76	54.9	45.1
Harmed and Helped	46.9	5.59	71.1	26.3
Safe and Compliant	46.1	5.39	64.6	35.3

Conclusion

This chapter has provided a detailed assessment of the study’s research questions, examining the connections between childhood experiences and adult criminal involvement. The results from the assessment illuminated how early life adversity, such as neglect and physical abuse, delinquent involvement, and child welfare protections merge to influence developmental trajectories that ultimately shape arrests during adulthood for violent and nonviolent crimes.

The examination of childhood pathways—Harmed and Harming, Neglected and Delinquent, Harmed and Helped, and Safe and Compliant—revealed distinct patterns of risk and resilience that influence adult offending patterns. Additionally, findings indicate that demographic factors such as gender, age, and race differentiate these pathways, shedding light on the nuanced interplay between individual characteristics and systemic

inequities. Moreover, statistical analyses of adult violent and nonviolent crimes underscore the lasting impact of childhood experiences on adult life outcomes.

The findings from this chapter advance the understanding of the enduring effects of childhood adversity and the pathways that lead to divergent life outcomes. These results serve as a foundation for the discussions in Chapter 5, where the implications of these findings for theory, practice, and policy will be addressed. Through these reflections, the study aims to contribute to ongoing efforts to prevent and mitigate the long-term consequences of childhood adversity on criminal behavior.

CHAPTER 5

DISCUSSION

Introduction

This chapter aims to synthesize the findings from the previous chapter and discuss their wider implications in terms of theory, future research, and policy and practice. The findings from the latent class analysis highlighted four distinct childhood pathways—Harmed and Harming, Neglected and Delinquent, Harmed and Helped, and Safe and Compliant—each revealing unique profiles related to childhood maltreatment, involvement in delinquency, and formal child welfare interventions. Importantly, these pathways were differentially linked to adult criminal outcomes, indicating that early life experiences have lasting effects on behavioral outcomes. This chapter will reflect on these findings and highlight how the interplay of childhood risk factors, delinquent behavior, and official child welfare interventions shape criminal involvement in adulthood. It aims to use this information to develop a set of recommendations for targeted, evidence-based interventions for at-risk children to avoid negative adult outcomes.

Implications for Theory

The findings presented in this study have significant implications for theoretical frameworks within criminology and developmental psychology, particularly the role of adverse childhood experiences (ACEs) over the life course. The findings demonstrating the dynamic interplay between early childhood adversities, behavioral development, child

welfare intervention, and adult criminal involvement, shed light on how different pathways of risk and resilience unfold over time.

First, identifying distinct childhood pathways offers nuanced insights into Moffitt's (1993) dual taxonomy, which distinguishes between life-course-persistent offenders and adolescent-limited offenders. The Harmed and Harming pathways and the Neglected and Delinquent pathways align more closely with life-course-persistent offending, given that individuals in these groups demonstrate continued criminal behavior into adulthood. The remaining pathways, Safe and Compliant and Harmed and Helped, better represent adolescent-limited offenders, as they exhibit less criminal behavior. Notably, the Harmed and Helped group presents a compelling case for the potential influence of the proper intervention at the right time; without such support, members of this group might have followed a life-course-persistent trajectory. These findings not only highlight the complex interplay of adversity, delinquency, and intervention in shaping long-term behavioral outcomes but also underscore the potential impact of early interventions, as exemplified by the Harmed and Helped group, where child welfare interventions appear to have disrupted trajectories that might otherwise have led to persistent offending. By contrast, the lack of proper intervention in the Harmed and Harming and Neglected and Delinquent groups highlights the societal costs associated with the absence of or ineffective interventions (Baglivio et al., 2014; Widom, 1989).

Second, the study contributes to social control theory (Hirschi, 1969) by emphasizing the importance of formal interventions in fostering resilience among maltreated children. According to Hirschi, strong social bonds deter individuals from

engaging in criminal behavior. The findings suggest that individuals in the Harmed and Helped pathway benefitted from formal child welfare interventions, which functioned as a form of social control by providing structure and support that mitigated the effects of early adversity. This highlights the potential of institutional interventions to strengthen social bonds and alter criminal trajectories, extending Hirschi's framework to incorporate the role of formal systems in preventing persistent offending (Ford et al., 2007).

Furthermore, the study extends ecological systems theory (Bronfenbrenner, 1981) by illustrating how adverse experiences at the microsystem level (e.g., family maltreatment) interact with mesosystem influences (e.g., formal child welfare interventions) to influence developmental outcomes. The differential outcomes observed in both the Safe and Compliant and the Harmed and Helped pathways underscore the importance of mesosystem-level interventions in mitigating the effects of early adversity. For the Harmed and Helped pathway, the high level of formal child welfare interventions exemplifies how systemic support can redirect developmental trajectories, reinforcing the critical role of structured, supportive environments in reducing the likelihood of persistent offending. These findings have implications for theoretical models that aim to integrate environmental and individual-level factors in explaining criminal behavior.

Finally, this research adds nuance to the ACEs framework, which has often emphasized the cumulative nature of adversity over its qualitative distinctions (Felitti et al., 1998). By identifying distinct pathways, this study highlights the heterogeneity in how different types of maltreatment and adversity influence long-term outcomes. For example, individuals in the Neglected and Delinquent pathway, despite experiencing less direct physical harm, exhibited substantial delinquent involvement, emphasizing that

neglect can be just as damaging as physical abuse. This finding aligns with research advocating for a broader understanding of ACEs and their differential impacts on development (Anda et al., 2006; Lansford et al., 2002).

Implications for Future Research

The findings from this study open several avenues for future research, emphasizing the need for a deeper understanding of the complex relationships between childhood adversity, developmental trajectories, and adult criminal behavior.

First, future research should explore the role of moderating factors in the relationship between adverse childhood experiences (ACEs) and criminal trajectories. While this study identified distinct pathways, the mechanisms through which individuals in certain pathways become life-course-persistent or desist from crime remain underexplored. For example, examining the role of protective factors—such as extra-familial social support, educational attainment, and access to mental health services could provide insights into how resilience develops in the face of adversity (Ford et al., 2007; Sampson & Laub, 1993). Longitudinal studies that track the influence of these factors over time would be especially valuable.

Second, cross-cultural longitudinal research is needed to examine whether the developmental pathways identified in this study generalize to different sociocultural contexts. Societal factors, such as child welfare systems, cultural norms surrounding parenting, and differences in criminal justice responses to juvenile delinquency, may shape developmental trajectories in unique ways (Lansford et al., 2002; Moffitt, 2006). Comparative longitudinal studies across diverse populations could enhance and deepen

the understanding of how structural and cultural contexts influence the impact of ACEs on long-term outcomes.

Finally, additional research is needed to examine whether the developmental pathways identified in this study are influenced by gender. While this study provides a nuanced perspective on how bundles of risks and adversities shape distinct pathways, future research could explore how gendered experiences and social expectations may intersect with these pathways. For instance, do boys and girls respond differently to similar types of maltreatment, or are there gender-specific protective factors that influence resilience or persistence in offending? Building on the work of Daly (1992), future studies could delve into how societal constructs of gender influence the relationships between early adversity, developmental trajectories, and adult criminal behavior.

Implications for Policy and Practice

The findings of this study underscore the critical need for targeted policy initiatives and intervention strategies that address childhood adversity to mitigate its long-term impacts on adult criminal behavior. Effective prevention and intervention efforts must account for the diverse pathways identified in this research, focusing on reducing risk factors, enhancing protective factors, and disrupting harmful developmental trajectories.

Primary prevention efforts should prioritize reducing the prevalence of ACEs through policies that support family stability and child welfare. Universal programs, such as parent education initiatives, early childhood development programs, and economic support for families have demonstrated effectiveness in reducing risk factors associated

with maltreatment and neglect. For instance, home visitation programs like the Nurse-Family Partnership, which provides parenting support to at-risk families, have been shown to reduce the incidence of child maltreatment and improve long-term outcomes (Olds et al., 1998). Furthermore, policies aimed at alleviating socioeconomic stressors that exacerbate family dysfunction, such as poverty, housing instability, and unemployment, are essential. Research has consistently demonstrated that addressing these structural inequalities can significantly reduce the occurrence of ACEs (Fang et al., 2012).

Secondary interventions should focus on children and adolescents already exposed to adversity, aiming to alter developmental trajectories before harmful patterns become entrenched. Trauma-informed care, which recognizes and responds to the impact of trauma, is a promising approach for children in the child welfare and juvenile justice systems (Bath, 2008). Such programs can help mitigate the behavioral and emotional challenges associated with ACEs, reducing the likelihood of delinquency and adult crime. Additionally, multi-systemic therapy (MST) and other evidence-based interventions that involve families, schools, and communities have proven effective in reducing delinquent behavior and improving outcomes for at-risk youth (Henggeler et al., 2009). MST's success highlights the importance of addressing the broader ecological context in which children develop, targeting not only individual behavior but also family dynamics and peer influences.

For youth already involved in delinquent behavior, the findings emphasize the necessity of diversion programs that provide structured, rehabilitative alternatives to formal justice system involvement. Programs that incorporate skill-building, education,

and mental health support have been shown to reduce recidivism and improve long-term outcomes (Lipsey, 2009). For example, Youth Advocate Programs (YAP), which connect justice-involved youth with trained mentors who provide intensive support within the community, have demonstrated success in reducing reoffending and promoting prosocial development.

Policymakers must ensure that child welfare and juvenile justice systems are adequately funded and staffed to provide high-quality, evidence-based services. This includes expanding access to mental health resources for children who have experienced maltreatment and ensuring that juvenile justice interventions are tailored to the developmental needs of at-risk youth. Moreover, cross-sector collaboration between child welfare, education, healthcare, and criminal justice systems is essential for developing comprehensive strategies to address childhood adversity. Integrated data systems can facilitate the early identification of at-risk children and enable coordinated responses across agencies (Widom & Maxfield, 2001).

Finally, interventions should not end in adolescence. Given the long-term impacts of ACEs, policies should also support adults who have experienced childhood adversity. Programs aimed at improving education, employment opportunities, and mental health services for this population can help break the intergenerational cycle of adversity and criminal behavior (Anda et al., 2006; Felitti et al., 1998).

Limitations

Despite its contributions, this study has limitations that must be acknowledged. The study's sample was drawn from a specific metropolitan area in the Midwest during a particular historical period (1967 to 1971). While the prospective cohort design provides

valuable insights into the long-term impacts of childhood adversity, the findings may not be generalizable to populations in other geographic, cultural, or temporal contexts. For instance, shifts in societal norms, child welfare policies, and criminal justice practices over time may influence the applicability of these results to contemporary populations. Future research can help determine whether this is the case.

The reliance on official records for identifying cases of abuse, neglect, and delinquency introduces potential bias. Official records often underrepresent certain types of maltreatment, particularly those less likely to be reported, such as emotional abuse or neglect within higher socioeconomic groups. Emotional abuse, in particular, is difficult to detect and document due to its subtle and subjective nature, which may not meet legal or institutional thresholds for intervention. Similarly, neglect, especially in financially stable households, may go unnoticed despite significant deficits in emotional or psychological caregiving. Systemic factors, such as variations in mandated reporting practices, inconsistencies in professional training, and cultural stigmas surrounding abuse, further exacerbate these reporting disparities. These gaps in the data not only skew the representation of maltreatment but also obscure the nuanced ways in which different types of abuse and neglect interact to influence developmental outcomes. Expanding research methodologies to include alternative data sources, such as self-reports or community-based assessments, may help address these limitations and provide a more comprehensive understanding of the prevalence and impact of maltreatment.

Although the study uses a prospective design for childhood data, adult criminal behavior was analyzed retrospectively, relying on official arrest and conviction records. This approach may not capture all instances of criminal behavior, particularly for

individuals who committed offenses that were not detected by legal authorities. Studies have shown that crimes, such as drug use or certain types of property crime, may go undetected or unreported, particularly in environments with limited law enforcement resources or community trust (Moffitt, 2006). Moreover, relying solely on official records may overrepresent individuals from marginalized communities, who are more likely to encounter law enforcement, face harsher sentencing, and experience a disproportionate rate of criminalization (Alexander, 2010; Klinger, 2019). These limitations suggest that future studies may benefit from incorporating self-report measures or alternative data sources to provide a fuller picture of criminal behavior, particularly among groups that are underrepresented in official records.

Moreover, advancements in statistical modeling, such as latent transition analysis (LTA), could be used to explore how individuals transition between pathways over time. While this study employed latent class analysis (LCA) to identify static pathways, LTA could provide insights into the dynamics of developmental trajectories, revealing whether interventions or life events lead individuals to shift from high-risk to lower-risk pathways (Nagin & Tremblay, 2005). LCA, while powerful, is inherently limited by the variables included in the model. The classes identified in this study may not fully capture the complexity of developmental pathways.

While these limitations do not undermine the study's contributions, they highlight areas for caution in interpreting the findings and underscore the need for additional research. Addressing these limitations in future studies will enhance the understanding of childhood pathways and their impact on adult criminal behavior, contributing to the development of more effective interventions and policies.

Conclusion

This study has explored the complex relationships between childhood adversity, delinquent involvement, formal child welfare interventions, and adult criminal behavior. Grounded in a prospective cohort design enriched by a matched control group, the study offers a nuanced understanding of how early life experiences shape behavioral trajectories and influence long-term outcomes. This research advances the knowledge base on the enduring effects of childhood maltreatment and delinquency, while also identifying avenues for intervention. More specifically, collaborative efforts among researchers, practitioners, and policymakers to break the cycle of adversity and crime by prioritizing early intervention, evidence-based policies, and holistic approaches to supporting at-risk children must be bolstered. By addressing the roots of criminal behavior in early life, society can move toward a more equitable and safe future, where children are equipped with the resources necessary to thrive.

REFERENCES

- Agnew R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30(1), 47–88. <https://doi.org/10.1111/j.1745-9125.1992.tb01093.x>.
- Akers R. L., Jennings W. G. (2019). The social learning theory of crime and deviance. In Akers R. L., Jennings W. G. (Eds.), *Handbook on crime and deviance* (pp. 113–129). Springer.
- Anda, R. F., Felitti, V. J., Bremner, D. J., Walker, J. D., Whitefield, C., Perry, B. D., . . . Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience*, 256(3), 174-186. <https://doi.org/10.1007/s00406-005-0624-4>
- Armour, C., Elklit, A., & Christoffersen, M. N. (2014). A Latent Class Analysis of Childhood Maltreatment: Identifying Abuse Typologies. *Journal of Loss and Trauma*, 19(1), 23-39. <https://doi.org/10.1080/15325024.2012.734205>
- Baglivio , M. T., Epps, N., Swartz, K., Huq, M. S., Sheer, A., & Hardt, N. S. (2014). The prevalence of adverse childhood experiences (ACE) in the lives of juvenile offenders. *Journal of Juvenile Justice*, 3(2), 1-23.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bath, H. (2008). The Three Pillars of Trauma-Informed Care. *Reclaiming Children and Youth*, 17(3), 17-21.
- Borja , S., Nurius, P. S., Song, C., & Lengua, L. J. (2019). Adverse childhood experiences to adult adversity trends among parents: Socioeconomic, health, and developmental implications. *Child Youth Services Review*, 100, 258-266. <https://doi.org/10.1016%2Fj.chilyouth.2019.03.007>
- Braithwaite, J. (2002). Setting Standards for Restorative Justice. *The British Journal of Criminology*, 42(3), 563-577. <https://doi.org/10.1093/bjc/42.3.563>
- Bronfenbrenner, U. (1981). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Cohen, L. E., & Felson, M. (1979). Social Change and Crime Rate Trends: A Routine Activity Approach. *American Sociological Review*, 44, 588-608. <http://dx.doi.org/10.2307/2094589>

- Daly, K. (1992). Women's pathways to felony court: Feminist theories of lawbreaking and problems of representation. *Southern California Review of Law and Women's Studies*, 2(1), 11-52.
- De Bellis, M. D. (2002). Developmental traumatology: A contributory mechanism for alcohol and substance use disorders. *Psychoneuroendocrinology*, 27(1-2), 155-170.
- De Bellis, M. D., & Zisk, A. A. (2014, April). The Biological Effects of Childhood Trauma. *Child and Adolescent Psychiatric Clinics of North America*, 23(2), 185-222.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. *Child development*, 82(1), 405-432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect*, 36(2), 156-165. <https://doi:10.1016/j.chiabu.2011.10.006>
- Farrington, D. P., Ttofi, M. M., & Coid, J. W. (2009). Development of adolescence-limited, late-onset, and persistent offenders from age 8 to age 48. *Aggressive Behavior*, 35(2), 150-163. <https://doi.org/10.1002/ab.20296>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245-258.
- Ford, J. D., Chapman, J. F., Hawke, J., & Albert, D. (2007). Trauma Among Youth in the Juvenile Justice System: Critical Issues and New Directions. (Research and Program Brief) *National Center for Mental Health and Juvenile Justice*, 1-8. http://www.ncmhjj.com/pdfs/publications/Trauma_and_Youth.pdf
- Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents. *Journal of Adolescent Health*, 46(6), 545-552. <https://doi.org/10.1016/j.jadohealth.2009.11.212>
- Gershoff, E. T. (2013). Spanking and Child Development: We Know Enough Now To Stop Hitting Our Children. *Child Development Perspective*, 7(3), 133-137. <https://doi:10.1111/cdep.12038>

- Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.
- Hawkins, D. J., Oesterle, S., Brown, E. C., Arthur, M. W., Abbott, R. D., Fagan, A. A., & Catalano, R. F. (2009). Results of a type 2 translational research trial to prevent adolescent drug use and delinquency: a test of Communities That Care. *Archives of Pediatrics & Adolescent Medicine*, *163*(9), 789-798. <https://doi.org/10.1001/archpediatrics.2009.141>
- Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford.
- Henggeler, S. W., Sheidow, A. J., & Lee, T. (2009). Multisystemic therapy (MST). (J. H. Bray, & M. Stanton, Eds.) *The Wiley-Blackwell handbook of family psychology*, 370–387. <https://doi.org/10.1002/9781444310238.ch25>
- Hirschi, T. (1969). *Causes of delinquency*. Berkeley, CA: University of California Press.
- Jones, C. M., Merrick, M. T., & Houry, D. E. (2020). Identifying and Preventing Adverse Childhood Experiences: Implications for Clinical Practice. *JAMA*, *323*(1), 25–26. <https://doi.org/10.1001/jama.2019.18499>
- Jones, S. M., Brown, J. L., & Lawrence Aber, J. (2011). Two-year impacts of a universal school-based social-emotional and literacy intervention: an experiment in translational developmental research. *Child Development*, *82*(2), 533–554. <https://doi.org/10.1111/j.1467-8624.2010.01560.x>
- Kolko, D. J., Iselin, A. M., & Gully, K. J. (2011). Evaluation of the sustainability and clinical outcome of Alternatives for Families: A Cognitive-Behavioral Therapy (AF-CBT) in a child protection center. *Child Abuse & Neglect*, *35*(2), 105–116. <https://doi.org/10.1016/j.chiabu.2010.09.004>
- Kostić M., Lazarević L., Maravić V. M., Vončina M. M., Kirćanski J. R., Stojković A., Videnović M. (2019). *Adverse childhood experiences study*. UNICEF. [https://www.unicef.org/serbia/media/10726/file/Adverse%20Childhood%20Experiences%20\(ACE\)%20Study.pdf](https://www.unicef.org/serbia/media/10726/file/Adverse%20Childhood%20Experiences%20(ACE)%20Study.pdf)
- Lanier, P., Maguire-Jack, K., Lombardi, B., Frey, J., & Rose, R. A. (2018). Adverse Childhood Experiences and Child Health Outcomes: Comparing Cumulative Risk and Latent Class Approaches. *Maternal and Child Health Journal*, *22*(3), 288–297. <https://doi.org/10.1007/s10995-017-2365-1>

- Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of Pediatric & Adolescent Medicine, 156*(8), 824-830. <https://doi:10.1001/archpedi.156.8.824>
- Lanza, S. T., & Rhoades, B. L. (2013). Latent class analysis: an alternative perspective on subgroup analysis in prevention and treatment. *Prevention Science, 14*(2), 157–168. <https://doi.org/10.1007/s11121-011-0201-1>
- Lanza, S. T., Rhoades, B. L., Greenberg, M. T., Cox, M., & Family Life Project Key Investigators (2011). Modeling multiple risks during infancy to predict quality of the caregiving environment: contributions of a person-centered approach. *Infant Behavior & Development, 34*(3), 390–406. <https://doi.org/10.1016/j.infbeh.2011.02.002>
- Lipsey, M. W. (2009). The Primary Factors that Characterize Effective Interventions with Juvenile Offenders: A Meta-Analytic Overview. *Victims & Offenders, 4*(2), 124-147. <https://doi.org/10.1080/15564880802612573>
- Marie-Mitchell, A., & Kostolansky, R. (2019). A Systematic Review of Trials to Improve Child Outcomes Associated With Adverse Childhood Experiences. *American Journal of Preventive Medicine, 56*(5), 756–764. <https://doi.org/10.1016/j.amepre.2018.11.030>
- Mehta, D., Kelly, A. B., Laurens, K. R., Haslam, D., Williams, K. E., Walsh, K., Baker, P. R. A., Carter, H. E., Khawaja, N. G., Zelenko, O., & Mathews, B. (2023). Child Maltreatment and Long-Term Physical and Mental Health Outcomes: An Exploration of Biopsychosocial Determinants and Implications for Prevention. *Child Psychiatry and Human Development, 54*(2), 421–435. <https://doi.org/10.1007/s10578-021-01258-8>
- Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: follow-up at age 26 years. *Development and Psychopathology, 14*(1), 179–207. <https://doi.org/10.1017/s0954579402001104>
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*(4), 674-701.
- Moffitt, T. E. (2006). Life-course-persistent versus adolescence-limited antisocial behavior. In D. Cicchetti , & D. J. Cohen, *Developmental psychopathology: Risk, disorder, and adaptation* (2nd ed., pp. 570-598). John Wiley & Sons, Inc.

- Nagin, D. S., & Tremblay, R. E. (2005). Developmental trajectory groups: Fact or a useful statistical fiction? *Criminology*, 43(4), 873-904.
<https://doi.org/10.1111/j.1745-9125.2005.00026.x>
- Olds, D., Henderson Jr, C. R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., . . . Powers, J. (1998). Long-term effects of nurse home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *The Journal of the American Medical Association*, 280(14), 1238-1244.
- Prinz, R. J., Sanders, M. R., Shapiro, C. J., Whitaker, D. J., & Lutzker, J. R. (2009). Population-based prevention of child maltreatment: the U.S. Triple p system population trial. *Prevention Science*, 10(1), 1-12. <https://doi.org/10.1007/s11121-009-0123-3>
- Rogosch, F. A., Dackis, M. N., & Cicchetti, D. (2011). Child maltreatment and allostatic load: consequences for physical and mental health in children from low-income families. *Development and Psychopathology*, 23(4), 1107-1124.
<https://doi.org/10.1017/S0954579411000587>
- Sampson, R. J., & Laub, J. H. (1993). *Crime in the Making: Pathways and Turning Points through Life*. Cambridge MA: Harvard University Press.
- Sampson, R. J., & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology*, 105(3), 603-651. <https://doi.org/10.1086/210356>
- Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-e246.
<https://doi.org/10.1542/peds.2011-2663>
- Smith, C. A., & Thornberry, T. P. (1995). The relationship between childhood maltreatment and adolescent involvement in delinquency. *Criminology*, 33(4), 451-481.
- Wade, R., Jr, Shea, J. A., Rubin, D., & Wood, J. (2014). Adverse childhood experiences of low-income urban youth. *Pediatrics*, 134(1), e13-e20.
<https://doi.org/10.1542/peds.2013-2475>
- Webster, E. M. (2022). The Impact of Adverse Childhood Experiences on Health and Development in Young Children. *Global Pediatric Health*, 9, 1-11.
<https://doi.org/10.1177/2333794x221078708>

- Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent Class Analysis: A Guide to Best Practice. *Journal of Black Psychology*, 46(4), 287-311.
<https://doi.org/10.1177/0095798420930932>
- Widom, C. S. (1989). The Cycle of Violence. *Science*, 244(4901), 160-166.
<https://doi.org/10.1126/science.2704995>
- Wisdom, C. S. (2006). *Child Abuse, Neglect, and Violent Criminal Behavior in a Midwest Metropolitan Area of the United States, 1967-1988 [Data set]*. Retrieved from <https://doi.org/10.3886/ICPSR09480.v1>
- Widom, C. S., & Czaja, S. J. (2012). Childhood trauma, psychopathology, and violence: Disentangling causes, consequences, and correlates. In C. S. Widom, *Trauma, psychopathology, and violence: Causes, consequences, or correlates?* (pp. 291-317). Oxford University Press.
- Widom, C. S., & Maxfield, M. G. (2001). *An Update on the "Cycle of Violence"*. Washington, DC: US Department of Justice Office of Justice Programs, National Institute of Justice.

ProQuest Number: 31930854

INFORMATION TO ALL USERS

The quality and completeness of this reproduction is dependent on the quality and completeness of the copy made available to ProQuest.



Distributed by
ProQuest LLC a part of Clarivate (2025).
Copyright of the Dissertation is held by the Author unless otherwise noted.

This work is protected against unauthorized copying under Title 17,
United States Code and other applicable copyright laws.

This work may be used in accordance with the terms of the Creative Commons license
or other rights statement, as indicated in the copyright statement or in the metadata
associated with this work. Unless otherwise specified in the copyright statement
or the metadata, all rights are reserved by the copyright holder.

ProQuest LLC
789 East Eisenhower Parkway
Ann Arbor, MI 48108 USA