ANTISOCIAL BEHAVIOR IN YOUNG ADOLESCENCE THROUGH EMERGING ADULTHOOD: THE SPECIALIZATION QUESTION

by

MARY ELIZABETH BOND EDMOND

(Under the Direction of Ronald L. Simons)

Abstract

While offending specialization is a central assumption of many criminological theories, a surprising amount of disagreement exists concerning its existence, patterns of manifestation, and association with desistance. This dissertation addresses the theoretical arguments of the criminal career paradigm, the dual taxonomy theory, the age graded theory of informal social control, and the general theory of crime to examine antisocial behavior specialization in young adolescence through emerging adulthood. To this end, three central questions are asked. First, within discrete time points, does antisocial specialization manifest? Secondly, how does specialization in antisocial behavior change over time? Finally, how do antisocial behavior patterns influence desistance? Furthermore, how gender is associated with specialization and change over time is considered. Using a longitudinal sample of 656 African American men and women from the Family and Community Health Study, latent transition analyses reveal that specific specialization statuses emerge in six discrete time points between young adolescence and emerging adulthood and that change in specialization is associated with life stage and desistance in emerging adulthood. Gender differences in status membership and change are also apparent. These findings both partially support the assumptions of the criminal career paradigm and the dual taxonomy theory as well as indicate the need for a more explicit specialization theory.

Keywords: emerging adulthood, young adolescence, the general theory of crime, the age graded theory of informal social control, the criminal career paradigm, the dual taxonomy theory

ANTISOCIAL BEHAVIOR IN YOUNG ADOLESCENCE THROUGH EMERGING ADULTHOOD: THE SPECIALIZATION QUESTION

by

MARY ELIZABETH BOND EDMOND

B.S., Georgia Institute of Technology, 2006

M.A., The University of Georgia, 2009

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

DOCTOR OF PHILOSOPHY

ATHENS, GA

2013

ANTISOCIAL BEHAVIOR IN YOUNG ADOLESCENCE THROUGH EMERGING ADULTHOOD: THE SPECIALIZATION QUESTION

by

MARY ELIZABETH BOND EDMOND

Major Professor: Ronald L. Simons

Committee: Jody Clay-Warner

Thomas McNulty

Electronic Version Approved:

Maureen Grasso
Dean of the graduate School
The University of Georgia
May 2013

DEDICATION

For my parents, Jack Ward and Pamela Kay Bond, who every day have encouraged my dreams, fostered my faith, and given me an example to live by. I love you both and am so very thankful and proud to be your daughter.

ACKNOWLEDGEMENTS

First of all, thank you to my husband, Timothy Joseph Edmond. You are truly the best part of my life, and I will be forever thankful that the Lord brought us together. You have showed me such support, love, and patience through this process. Thank you for the words of encouragement and wisdom – I am so glad that I get to *do life* with you, Babe.

Thank you to my amazing parents. You both have supported me at each and every step of my education and were dedicated to providing me with the best start possible. Without you, I would have never made it through graduate school, and I will always strive to make you proud.

Gratitude is also due to my major professor, Ron Simons. This dissertation was successful largely because of your expertise and encouragement. Thank you for every opportunity you have given me and for your mentorship these past six years.

Similarly, thank you also to my dear friend, Man Kit (Karlo) Lei. Your patience and willingness to provide statistical advice has meant more to me than you know. The analysis performed here is much better because of your counsel and friendship.

Last, but certainly not least, I want to thank my sister-friends for being there to listen to my graduate-school woes, send kind words of encouragement, and much needed breaks of celebration. Kathy, Jennifer, Bekah, Cat, Beth, Kristi, Cindy, and Erin – I love you dearly and am so thankful for each of you.

TABLE OF CONTENTS

CHAPTER 1

Introduction

Thirteen years ago, Farmington (1999) argued that some of the most pressing research questions for the new millennium included those concerning criminal careers, offending specialization, life stages, and underlying concepts of criminality. While researchers have certainly made strides in understanding these areas of study, many questions still persist. Much debate exists surrounding the presence of offending specialization, its relation to offenders' life stage and its association with desistance.

Some argue that specialization in offending or antisocial behavior is either too rare to be of theoretic importance or an illusion of opportunity constructs (Gottfredson & Hirschi, 1990; Sampson & Laub, 1993). Others hypothesize that specialization patterns are present that can be linked to neuropsychological and social differences (Moffitt, 1993) or career pathways (Blumstein et al., 1986). Researchers demonstrate that certain criminal activity is more likely in some life stages than in others (Steffensmier et al., 1989) and that onset of offending may influence crime specialization (Moffitt, 1993).

However, offending patterns' association with desistance is less understood. While some argue that those who specialize in some forms of offending, such as drug offences, may be more likely to desist than others (Armstrong, 2008b), specific pathways to desistance are difficult to untangle as some argue that they are likely the result of complex subjective and social changes (LeBel, Burnett, Maruna, & Bushway, 2004). Researchers also show patterns of displacement as well as desistance in which offenders move to less serious offenses rather than desisting (Massoglia, 2006), suggesting that true distance may not be the most accurate measure of shifts away from serious offending.

While the specialization question is certainly complex and far from fully understood, the majority of studies addressing it only considers the specialization patterns of a very specific population and utilizes methodologies that tend to favor findings of versatility rather than specialization. Most researchers in this area use official arrest data, high risk samples, aggregate methodologies, and official definitions of

offending. As a result of these common techniques, previous studies often have biased results in favor of versatility rather than specialization (Sullivan et al., 2006) and have limited understanding of this topic to only the most serious criminals.

Despite the lack of empirical agreement concerning specialization, questions concerning offending patterns are central to criminological theory (Armstrong, 2008a). Most theories assume either the possibility (Moffitt, 1993) or the unlikelihood of offending specialization (Gottfredson & Hirschi, 1990). Those who propose that specialization in offending is unlikely suggest measuring offending with varied lists of criminal acts cross-sectionally (Ibid). However, if specialization occurs, more careful measurements that capture themes of offending may be appropriate (Trojan & Salfati, 2010). A better understanding of offending patterns and specialization can help researchers to determine the best ways to measure offending behavior.

Furthermore, while current theories such as the criminal career paradigm (CCP), the general theory of crime (GTC), the age graded theory of informal social control (AGTISC), and the dual taxonomy theory (DTT), all suggest the possibility or unlikelihood of specialization. No empirically supported theoretic construct has been devised to explain it. The current study offers a test of antisocial behavior specialization's existence, patterns of change over time, and relationships to desistance in order to lay the groundwork for a more explicit theoretic paradigm to explain specialization, its occurrence, and consequences.

In addition to the theoretical significance of offending patterns, questions concerning specialization also have policy implications that may shape the experiences of those subject to policy interventions as well as the communities that are meant to be helped by such interventions (Tremblay & Craig, 1995). If all offending is versatile, interventions to curb criminal activity would not need to be crime-specific. However, if offending displays more complex patterns, preventions may need to be tailored to fit specific offending patterns.

This study addresses the rich and complex area of antisocial behavior specialization within the framework of predictions gleaned from the GTC, the AGTISC, the CCP, and the DTT. This dissertation

concerns three central research questions, which include: Within discrete time points, does antisocial specialization manifest? How does specialization in antisocial behavior change over time? How do antisocial behavior patterns influence desistance? Furthermore, how gender is associated with specialization and change over time is considered.

To address these questions, a complex latent variable methodology is employed to assess not only specialization in 6 discrete time points between the ages of 10 and 24, but also shifts in status membership over time. From these results gender differences and associations with desistance are explored as well as the theoretical implications of the findings.

To accomplish this, data from the Family and Community Health Study (FACHS) are utilized. This sample provides the opportunity to examine a wide range of antisocial behaviors of African Americans, spanning the years from young adolescence to emerging adulthood. African Americans are of particular importance to study when considering questions of crime and delinquency because of historic discrimination and poverty which has been linked to more frequent interactions with the criminal justice system (Feagin, 2000). While studies do not suggest that antisocial tendencies are associated with race, extensive evidence demonstrates that African Americans face higher odds of incarceration than whites (Bureau of Justice Statistics, 2008). Furthermore, African Americans are also more likely to live in impoverished areas which may place them at greater risk for certain kinds of criminal involvement and victimization (Nikulina, Widom, & Czaja, 2011).

In the chapters that follow, I introduce an overview of theoretical predictions concerning antisocial behavior specialization, longitudinal change, and possible associations with desistance and gender. Next, I explore the empirical and theoretical framework for each research question in turn. After detailing the methodological strategies employed in this current study, I discuss the analyses' results and the consequential theoretical implications for the criminological field.

CHAPTER 2

Overview of Theoretical Predictions

While specialization and versatility in offending are central to many theoretical assumptions and policy interventions (Armstrong, 2008a; Tremblay & Craig, 1995), surprisingly little theoretical direction has been developed to guide expectations of offender specialization and/or versatility (Blumstein et al., 1988; Brennan, Sarnoff, & Richard, 1989; Lattimore, Visher, & Linster, 1994). Questions of policy have overshadowed those of theory (Bursik, 1980; Durham, 1988; Holland & McGarvey, 1984; Klein, 1984; Schwaner, 1998; Simon, 1997). However, while theoretical guidance concerning specialization has not been prolific, criminological theories have not been silent on the issue.

Largely, criminological theories fall into two opposing camps of thought. Those that suggest that specialization is unlikely are represented by the GTC (Gottfredson & Hirschi, 1990) and the AGTISC (Sampson & Laub, 1993). On the other hand, the CCP (Blumstein, Cohen, Roth, & Visher, 1986) and the DTT (Moffitt, 1993) both suggest that specialization does occur in meaningful, albeit slightly differing ways.

The GTC is structured around the assumption that populations cannot be divided between offenders and nonoffenders, and certainly not subdivided based on crime specialization; any distinction between those who offend and those who do not is based on the degree of offending and not the type of offense (Gottfredson & Hirschi, 1990). All offending behavior is the result of a latent construct that is universally present in varying degrees, self-control, which develops in childhood through parenting and is fixed at a relatively early age.

Those with low levels of self-control are more likely to engage in offending in general. Furthermore, those with the lowest levels of self-control are more likely to engage in the most forms of deviant acts. Hence, any appearance of specialization is just the result of opportunity constructs. However, Gottfredson and Hirschi (1990) also argue that opportunity to offend is ubiquitous. They

would contend that the high frequency of offending for those with low self-control may result in more serious offending, such as violent offending (Piquero, 2000), but this is just a function of the higher frequency of offending and not some underlying tendency to specialize in violence.

Like the GTC, the AGTISC does not predict specialization in behavior. Sampson and Laub formed their perspective from a reexamination of the Gluecks' (1930) cohort of criminal men. They find that age graded transitions, or turning points, in early adulthood, such as marriage and employment, increased the probability of criminal desistance in the historic sample due to increased informal social control and changes in routine activities (Horney, Osgood, & Marshall, 1995; McGloin et al., 2007).

This theory's stance on trajectories of offending and potential patterns of crime specialization can be conceptualized as general yet dynamic (Piquero et al., 2002). The theory is general in that it does not allow for the specialization of crime trajectories. For instance, Sampson and Laub (1993) do not argue that specific offending trajectories exist for crime types, such as violent or property crimes, but that offending is substantially general in nature; the Gluecks' data provides evidence for a wide range of criminal involvement. However, individual engagement in criminal offending is not static but dynamic as changes in the structure of individuals' lives can alter crime trajectories leading to changes in the frequency of offending or desistance. While in the reexamining of the Gluecks' data, they do find low levels of crime specialization, they do not deem these small differences in crime type as theoretically meaningful (Sampson & Laub, 1993; 2003).

In contrast to these two approaches, the CCP, though not a theory of crime, does offer a framework for examining behavior specialization. The CCP was first constructed not by sociologists but by engineers seeking to determine the effectiveness of criminal incapacitation in reducing crime rates and the best policy strategies for reducing crime through imprisonment (Avi-Itzhak & Shinnar, 1973). Their mathematical contribution to criminology is a stochastic model, which implies a criminal career structure of offending onset, continuation, and desistance. This structure necessitates the existence of at least two distinct groups of people: offenders and nonoffenders (Nagin & Land, 1993). Others within the paradigm contend that offenders can be specialists, repeatedly offending the same crime or crime types, or

generalists, offending among a wide range of crimes (Cohen, 1986). Criminologists have used this paradigm to explore social and/or psychological variables that may influence onset, continuation, and desistance within the span of criminal careers (Blumstein et. al., 1986; Blumstein & Cohen, 1979; Farrington, 1986).

Concerning specialization specifically, Blumstein et. al. (1986) anticipate that offenders will engage in a variety of crime types, but some tendency for repeating crimes of similar types may occur for property or violent crimes. Onset of a criminal career can occur throughout life, and adult onset of offending is possible. However, those who begin offending earlier may offend with greater frequency (Ibid). Le Blanc and Loeber (1998) also add some dimensions to the CCP including crime acceleration, stabilization, and diversification, aggravation or escalation, and desistance. Regarding patterns of desistance, Le Blanc and Loeber (1998) argue that desistance occurs through reductions in frequency and specialization of criminal offenses.

Finally, the DTT too suggests that offending specialization occurs in theoretically meaningful ways. Moffitt's (1993) theory does not assume a general trajectory of crime but rather two main groups of offenders who display specific characteristics in their development, trajectories of offending, and crime types. She argues that neuropsychological circumstances when coupled with harsh childhood environments often result in life course persistent offenders (Moffitt, 1993). These offenders are unlikely to desist from crime over the life course, are versatile in their selection of crime types, and are more likely to engage in violence. This group is also more likely to begin displaying antisocial patterns early in life. The other offending group is the adolescent limited group (Ibid). This group begins offending later, in adolescence, and tends to specialize in minor forms of delinquency that are rarely violent or serious in nature. Members of this group do not have the neuropsychological challenges of the life course persistent offenders and are more likely to desist from their adolescent criminal careers as they emerge into adulthood.

Moffitt, unlike many crime theorists, explicitly addresses how gender may affect her theoretical propositions. She argues that women are less likely than men to be life course persistent offenders, but

they have similar likelihood of being adolescent limited offenders, meaning that the gender gap in offending should be less pronounced in adolescence (Moffitt, 1994). Girls are less likely to become life course persistent offenders because they are less likely than boys to have neuropsychological and developmental problems and aggressive interactional tendencies which help both spur and continue life course persistent offending (Ibid). Also, Moffitt (1994) contends that girls are often segregated from the more delinquent prone boys and are thus less likely to learn delinquent behaviors. Moffitt and Caspi (2001) test the gendered hypotheses of Moffitt's (1994) theory and find that the male to female ratio of life course persistent offenders is 10:1 while the ratio for adolescent limited offenders is 1.5:1. Furthermore, Moffitt and Caspi (2001) find that the same risk factors are relevant for both the boys and girls in their study. These findings lend support for Moffitt's (1994) claims concerning gender.

Concerning life stages and criminal involvement, Moffitt (2001) contends that adult onset of offending is extremely unlikely. However, predictions can be gleaned concerning adolescent onset with those starting earliest being more likely to be life course persistent. In regards to desistance, those who specialize in minor delinquency could be anticipated to desist while those who showcase more versatility in offending would be expected to continue in offending.

The preceding discussion of current theories' positions concerning antisocial behavior specialization highlights the disagreement that currently exits. While the GTC and the AGTISC dismiss specialization as unlikely and/or theoretically unimportant, the CCP and the DTT offer slightly differing predictions concerning the manifestation of specialization, its longitudinal patterns, and its significance for desistance, life stage, and gender. Clarity concerning antisocial behavior specialization and its significance is needed for criminological theories to move forward in better understanding underlying causes of criminality, patterns of offending, and best practices for intervention.

In the following chapters, I extensively explore the theoretical and empirical implications for each of my three research questions. As a review, these questions include the following: (1) Within discrete time points, does antisocial specialization manifest? (2) How does specialization in antisocial behavior change over time? (3) How do antisocial behavior patterns influence desistance? After each theory's

predictions are established, I proceed to present the current study's employed sample, methodological strategies, analysis, results, and theoretical implications.

CHAPTER 3

RQ1: Within discrete time points, does antisocial specialization manifest?

The Generality and Specialization Hypotheses

At its most basic definition, specialization is the likelihood of a given offender to be arrested for the same crime type sequential times (Blumstein et al., 1986). Others have more inclusively defined it as a tendency to repeat crimes that share similar characteristics of violence or property offenses (Cohen, 1986; Mazerolle et al., 2000). Thus, offenders can be classified as specialists who tend to engage in the same crimes repeatedly or generalists who show less expertise (Cohen, 1986).

Researchers who study specialization in offending tend to follow two different theoretical models: opportunity and propensity models (Armstrong, 2008a). Opportunity models would credit changes in environment as facilitating some types of criminal activity more than others as seen in routine activity approaches (Felson, 1994). Conversely, propensity models argue that individual characteristics of offenders may lead to specialization within certain crime categories (Blumstein et al., 1988). However, both propensity and opportunity models could logically work simultaneously, yet through different constructs, to produce specialization in offending.

The crime perspectives and theories most notable for arguing for the specialization hypothesis are the CCP (Blumstein et al., 1988) and developmental theories, such as the DTT (Moffitt, 1993). Conversely, the generality hypothesis, advocated by the GTC (Gottfredson & Hirschi, 1990) and the AGTISC (Sampson & Laub, 1993), contend that specialization in offending is either a result of ubiquitous opportunity structures (Gottfredson & Hirschi, 1990) or too infrequent for theoretical discussion (Sampson & Laub, 1993).

Empirical Evidence for Specialization: Static and General

Specialization in offending or antisocial behavior in general has attracted a great deal of interest. Early work in this area used criminal histories in an attempt to create taxonomies of offenders (Gibbons, 1988;

Gibbons, 1975; Glaser, 1972). These types of specialization studies attempt to uncover static groupings of offenders that maintain offending patterns over the course of criminal participation. However, Sullivan et al. (2006) note that these kinds of specialization efforts are inconsistent with trajectories of offending. Strictly characterizing offenders as one type or another has not been shown to be useful in light of empirical evidence (DeLisi, 2005; Francis, Soothill, & Fligelstone, 2004). Furthermore, most static specialization studies have not garnered much empirical support (McGloin, Sullivan, & Piquero, 2009).

For instance, when looking at background arrest data for multiple homicide offenders, Wright et al. (2008) find that multiple homicide offenders and single homicide offenders have very similar arrest data histories, indicating that serial homicide offenders may not be as specialized as popularly understood. In a similar vein, Piquero et al. (2006) find that the arrest histories of those convicted of domestic abuse contain not just histories of violent offenses but property related ones as well. Furthermore, arrest histories of sexual offenders indicate little specialization (Miethe, Olson, & Mitchell, 2006). These studies are consistent with other findings that offenders are largely versatile rather than specialized and tend to alternate among offense types (Blumstein et al., 1988; Bursik, 1980; Farrington, Snyder, & Finnegan, 1988; Horney, Osgood, & Marshall, 1995; Kempf, 1987; Klein, 1984; Lattimore, Visher, & Linster, 1994; Osgood et al., 1988; Piquero, 2000; Piquero et al., 1999). However, using markov chain analysis, Stander et al. (1989) find that there is evidence for specialization and that sex and fraud offenders are the most specialized. Other studies too find that specialization, though rare, does sometimes occur (Blumstein et al., 1988; Miethe, McCorkel, & Listwan, 2006).

However, many of the versatility findings have limitations and research design restrictions which necessitate further investigation of offense specialization. Sullivan et al. (2006) argue that versatility findings are sometimes perpetuated through time and measurement aggregation bias. They propose disaggregating individual measures, which promotes greater findings of offense specialization. Disaggregating individual measures also helps to account for the high positive correlation that criminal behaviors share (Deane, Armstrong, & Felson, 2005). Furthermore, the type of statistical model employed can also bias findings as many models of specialization assume a normal distribution while parametric

models allow for offending clumps to emerge, suggesting localized offending specialization (Nagin & Paternoster, 2000). Thus, while general empirical evidence concerning specialization, particularly static specialization based on arrest history, is slim, other approaches to the specialization question have revealed more positive evidence for its existence.

Evidence for Dynamic Specialization

Versatility in offending has certainly been widely supported (Britt, 1994; Parkinson et al., 2004; Simon, 1997), but specialization has garnered support as well. Piquero (2008) argues that empirical evidence suggests that offenders are a disparate group and not homogenous in nature. Furthermore, Nagin (2005) states that even with the strong evidence for versatility in offending, the appropriateness of categorizing offenders has not been ruled out.

Loeber and Le Blanc (1990) describe how generality and specialization relate when they write, "against a backdrop of continuity, studies show large within individual change in offending" (390). These changes in offending within individuals, consistent with the life course perspective, have received support. Horney et al., (1995) find that short term changes in offending patterns could be due to local life circumstances, though this study is not focused on changes in offending type. The presence of within individual differences suggests that specialization should be examined over time and considered dynamic in nature.

Some studies have demonstrated that by examining not just long histories of offending, but shorter time periods within those histories, specialization appears in the short term while versatility typifies the long term (McGloin et al., 2007; Shover, 1996; Steffensmeier & Ulmer, 2005; Sullivan, McGloin, Pratt, and Piquero, 2006). Specialization may also be offense specific. Some types of crimes may be more likely to encourage specialization than others. Blumstein et al., (1988) find that drug and property offenses show greater specialization than offenses of a violent nature. Child molesters may be more specialized in their crimes than more general sex offenders, such as rapists (Lussier, LeBlanc, & Proulx, 2005). Also, violent crimes may be associated with more versatility than other crimes (Brame, Mulvey, & Piquero, 2001; Piquero, 2000).

Evidence for Specialization and Versatility as Compatible Concepts

While research has shown that some types of specialization occur, others have begun to argue for a more inclusive approach to versatility and specialization in offending. In a review of the literature concerning sexual offenders, Lussier (2005) determines that versatility and specialization in offending may be two sides of the same coin. He finds that recidivism studies tend to favor specialization in sexual offending while studies using participation data find support for versatility. He suggests that recidivism and participation are only broad descriptors and do not fully capture the active and complex nature of offending over time. He agrees with Loeber and Waller (1988) that versatility and specialization can coexist over an offender's career. Furthermore, Lussier (2005) suggests that developmental criminology allows for the simultaneous exploration of versatility and specialization within criminal careers. Thus, researchers interested in specialization should not conceptualize it as diametrically opposed to versatility or generality in offending but as complimenting aspects of offending over the life course.

Number and Type of Specialization Groups

While researchers have established that specialization is a characteristic of offending over time and that correlates of crime may also be correlates of specialization, literature concerning the number and possible types of specialization groups is sparse. While many studies find that a single factor structure of antisocial tendencies is appropriate, others suggest that greater complexity increases model fit (Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988; Gillmore et al., 1991; Osgood et al., 1988; Rowe & Flannery, 1994). Using measures for aggression, drug use, and delinquency, Farrell et al. (2000), find that a high order model was the most appropriate for their analysis.

These findings suggest that multiple clusters of offending specialization are appropriate to consider because antisocial behaviors may be more complex than a single factor structure would indicate. Farrington et al. (1988) did not adopt a thematic approach in their study of specialization, but they did suggest that such an approach could be adopted. Trojan and Salfati (2010) demonstrate that homicide offenders can be grouped into two categories, violent and instrumental. Their study demonstrates the applicability of thematic structures to the study of specialization.

Using latent class analysis, Francis et al. (2004) identify 9 offenses clusters for the men in their sample and 3 for the women. They argue that the men in their sample display greater versatility in offending. Also using cluster analysis with a sample of adolescents, Bartlett et al. (2005) find 3 clusters indicating increasing levels of seriousness and frequency of problem behaviors. Using an adolescent sample, Soothill et al. (2010) find 4 clusters of problem behavior types: an abstaining group, an experimenting group, a high risk/sexually active group, and a high risk/nonsexually active group. A recent study of generational data finds 16 offense clusters for men spanning from the 1970s to the 1990s but only 5 clusters for women; this study suggests that versatility type clusters have increased for men and women, while violent specialization clusters for women have increased (Soothill et al., 2008).

While these studies do demonstrate the usefulness of clustering antisocial behavior in thematic categories and give some indication that men may have more cluster groupings than women, the diverse nature of the samples involved does not lead to strong generalized conclusions. What can be readily gleaned from these studies is a need for further investigation concerning specialization clusters both longitudinally and with more diverse samples.

Gender Differences in Specialization

Gender represents both a source of one of the most widely accepted facts in criminology as well as one of the most neglected subjects of the area. Studies consistently show that women not only commit fewer crimes than men, but also crimes of a less serious nature (Belknap, 2007). This being widely accepted, women are still present as victims and perpetrators of crime, but have been often ignored by criminological theorists and researchers (Ibid). Furthermore, as specialization as a specific subset of criminological studies is still being explored and in need of further inquiry (Farrington, 1999; 2003), it is perhaps not surprising that female offenders' patterns of specialization have not been widely studied. In fact, Farrington (1999) has called specifically for greater attention paid to women in career criminal research.

Some researchers find no evidence for differences in gender specialization patterns. For instance, in studying possible gender differences in the construction of the structure of the deviance syndrome, Le

Blanc and Botheillier (2003) argue that a gender gap is not evident. Mazerolle et al., (2000) test some of the gender hypotheses present in Moffitt's (1993) theory. They find that women are less commonly life-course persistent offenders. However, while Moffitt's (1993) theory suggests that men, more likely to be life-course persistent offenders, will be more versatile in offending than women, Mazerolle et al. (2000) find no gender differences in men and women's patterns of versatility.

Other researchers find more evidence for gender differences in specialization. For instance, while men commit more crimes than women, these crimes are more likely to be of a violent nature (Blumstein et al., 1986; Hindelang, 1971; Johnson et al., 1995; Smith & Visher, 1980; Steffensmeier, 1993; Steffensmeier & Allan, 1996). This tendency for men to be more likely to engage in violence could be conceptualized as a kind of specialization. In general, some argue that men are more likely to specialize than women, but women may be more likely to specialize in status offenses (Kempf, 1986). Similarly, among juvenile offenders who had more than 10 referrals from juvenile courts, Farrington et al. (1988) find that girls may be more likely to specialize, but their specialization is centered on decidedly minor offenses, like running away. When boys in their sample specialized, it is in more serious and/or violent offenses. A couple of more recent studies indicate that when cluster analysis is utilized, which is meant to capture latent similarities among variables, men tend to have a greater number of offense clusters than women, which may indicate a tendency for both sexes to specialize, but men to display greater diversity in their specialization (Francis, Soothill, & Fligelstone, 2004; Soothill et al., 2008).

Common Methodological Limitations

While researchers have made many advances in the study of specialization in offending, previous studies have common methodological and conceptual similarities that are limiting further advancement in this area. These include: a focus on official definitions of criminal offenses, high risk samples, and a focus on count based statistical approaches like the forward specialization coefficient and the diversity index.

Studies using official arrest statistics with high risk samples have overshadowed the use of self-report data from more representative samples. This focus on official arrest statistics has narrowed criminologists' understanding of specialization. For instance official arrest data may limit the scope of

criminal acts recorded. Official police report data often only record the most serious offense as the cause of arrest (Miethe, McCorkel, & Listwan, 2006). This limits the types of criminal behaviors that are available for the researcher to examine.

Furthermore, many studies examining offender specialization often use samples from imprisoned, paroled, or high risk offenders (e.g. Armstrong, 2008a; Armstrong, 2008b; Armstrong & Britt, 2004; Miethe, Olson, & Mitchell, 2006; Piquero et al., 1999; Piquero et al., 2006; Soothill et al., 2008; Trojan & Salfati 2010; Williams & Arnold, 2002; Wright, Pratt, & DeLisi, 2008). By focusing on the most serious offenders who have been convicted of official crimes, researchers may limit criminologists' understanding of specialization. Furthermore, race and gender biases are common in high risk samples as researchers must also take into consideration not only the behaviors of the offenders but also the law (Uggen & Kruttschnitt, 1998). For instance, nonwhites are more likely to be arrested for violent offenses (Blumstein et al., 1986), and women in the criminal justice system have been subjected to a wide range of gendered processes and biases including gender-specific laws (Belknap, 2007).

The specializations of less serious offenders or offenders who avoid detection are not often utilized, and thus, many previous studies provide a limited picture of offender specialization. These studies may really only advance knowledge concerning the specialization of high risk populations while the specialization patterns of less serious offenders are left less understood. Furthermore, the ability for these types of studies to offer generalizations is hampered by the very specific samples that are often employed.

Beyond official definitions of criminal acts, a broader definition of socially harmful behavior is available, namely, antisocial behavior. Tolan et al. (1995) define antisocial behavior as "a spectrum of behavior, usually marked by aggression but representing transgressions against societal norms. In many cases, such behavior represents illegal acts but not always. Antisocial behavior can range from relatively innocuous but obnoxious behavior such as tantrums and oppositional behavior to the most socially and criminally offensive acts" (515). By using this definition of antisocial behavior, the problem of harmful social interaction can be studied in many different forms and across life stages (Ibid). For instance, the

inconsistency of defining unlawful acts as delinquent in adolescence yet criminal in adulthood, and thus implying different causal processes or implications, is removed when both delinquent and criminal acts are included in the wider definition of antisocial behavior. Other studies support the notion of diverse problem behaviors being the result of a latent construct; criminologists' general deviance and psychologists' problem behavior may just be a tendency to engage in deviant acts (Jessor & Jessor, 1977; Le Blanc & Bouthillier, 2003). Furthermore, antisocial behavior, and its antithesis, prosocial behavior, is fundamental to human evolution and progress, reflecting not just a series of unrelated acts, but a larger structuring of human society (Keltner, 2009).

In the current study, the more inclusive definition of antisocial behavior is used because it is not dependent on official definitions,[1] and it allows for a more inclusive study of negative social behavior as it is not bound by time, place, or cultural definitions (Ibid). Also, a broader definition is helpful when constructing themes of negative behavior as it will allow for greater nuance and detail. Furthermore, while some official definitions like delinquency or criminality are bound by life stage, antisocial behavior maintains theoretical stability throughout life stages (Caspi & Moffit, 1991), which is helpful when examining this kind of behavior overtime.

Beyond offense definitions and sampling limitations, previous methodological approaches are lacking. Studies examining specialization often employ the forward specialization coefficient (Farrington, 1986) or the diversity index (Agresti & Agresti, 1978) in conjunction with official crime reports (e.g. Armstrong, 2008a; Armstrong, 2008b; Miethe, Olson, & Mitchell, 2006; Piquero et al., 1999; Stander et al., 1989; Sullivan et al., 2006; Williams & Arnold, 2002). Both of these measures are meant to determine specialization based on subsequent or previous criminal arrests. These measures of specialization work well with the CCP's definition of specialization as the probability of an offender to repeat an offense with another offense of the same type (Blumstein et al., 1986). Likewise, these concepts relate well to the concept of offense trajectories, as they measure and interpret behavior linearly.

[1] Because most research reviewed here refers to more narrowly defined behavior, the terms offending, criminal behavior, deviance, and antisocial behavior are used interchangeably throughout this piece.

The trajectory paradigm, though sometimes dismissing of specialization (Sampson & Laub, 1993) or diminishing the possibility for change between specialized trajectories (Moffitt, 1993), has dominated criminological scholarship in life course and developmental perspectives. Recently, a call has been made for a greater focus on offending types rather than rates of offending as offending rates have dominated the current literature while other measures have been left understudied (Massoglia, 2006).

Beyond single count approaches to specialization, a thematic approach has been encouraged (Salfati, 2000; Trojan & Salfati, 2010). This approach assumes that criminal acts can be clustered into groups that reflect underlying themes. In analyzing single and serial homicide offenders, Trojan and Salfati (2010) determine two specialization themes: violent and instrumental. They further conclude that serial offenders are more likely to specialize in instrumental offenses, or offenses that lead to a goal other than just violence. This type of a thematic approach to crime behaviors is used in criminal profiling studies, but has not been widely used in sociological studies of crime (Salfati, 2000).

Thematic grouping of criminal behaviors is reflected in other criminological and psychological arguments concerning antisocial behavior. For instance, heterotypic continuity suggests that individual characteristics, developed in childhood, will behaviorally manifest through adulthood in varying yet related ways (Caspi & Bem, 1990). Gottfredson and Hirschi (1990), though not proponents of crime specialization, do argue that all crime and a wide array of acts analogous to crime share the theme of low self-control. A thematic approach to criminal behaviors may offer a more nuanced understanding of offending which may lead to a theory for understanding specialization in offending. The current study advances previous work by including a more inclusive definition of antisocial behavior, a diverse sample, and a theme based approach.

Theoretical Predictions for Research Question #1

While the empirical evidence offers little undisputed guidance as to the number of clusters to expect and their antisocial makeup, there are a few specific theoretical predictions concerning how antisocial behavior will manifest within discreet time points which represent two opposing specialization frameworks. The GTC and the AGTISC do not predict antisocial behavior specialization. According to

these two theories only two groups of individuals should be evident: those who engage in antisocial behavior and those who do not.

On the other hand, both the CCP and the DTT allow specialization. According to researchers within the CCP, up to four groups of specialization will occur. These groups will represent individuals who abstain from antisocial behavior, those who specialize in property offense, drug offenses, or versatile behaviors. Also, those who belong to the versatile group will be more likely to engage in violence as well. Finally, as individuals age, more diverse specialization groups will manifest.

The DTT suggests that up three groups of specialization are likely: Those who engage in versatile and violent antisocial acts, those who specialize in mild delinquency and nonviolent acts, and those who do not engage in antisocial behavior. Men will be more likely to be members of the versatile and violent group, and women will be more likely to be in the specialized and nonviolent group. As individuals age, fewer specialization groups will emerge as those who are the most likely to specialize are also the most likely to desist as they age.

CHAPTER 4

RQ2: How does specialization in antisocial behavior change over time?

If predictions of the CCP or the DTT are supported concerning antisocial behavior specialization, a more dynamic question concerns how specialization changes over time. Implicit in this broad question are two specific processes concerning the link between past and future behavior and the developmental influence of life stage on specialization.

A discussion of change in offending specialization requires a brief review of some important definitions: Onset, escalation, de-escalation, desistance, and continuation in offending. Onset refers to when offending or antisocial behavior begins. Such behavior can begin in early childhood (Moffitt, 1993) and throughout the life course into adulthood (Blumstein et al., 1986). Escalation is a movement from less to more serious types of crimes (Blumstein et al., 1986), which implies developmental progress. De-escalation is the reverse of this process. Both escalation and de-escalation can be elements of a continuation in offending activity, and can act as opposing streams in a cycle of offending (Le Blanc, 2002). Desistance is the ceasing of criminal activity, and it can be conceptualized as either primary or secondary in nature (Maruna & Farrall, 2004). Intermittency in desistance is also common in which offenders may cease offending for a time to begin anew at later dates (Nagin & Land, 1993).

The Associated Relationships of Past and Future Specialization

For specialization to change over time, a connection must exists between past and future antisocial behavior. This link is, in fact, one of the most established facts in criminology (Nagin & Paternoster, 2000). Criminologists have taken two key stances on why past and future criminal behavior is positively associated. These two arguments are population heterogeneity and state dependency (Nagin & Paternoster, 1991). Population heterogeneity contends that the reason why past criminal behavior is highly and positively correlated with future criminal behavior is because of a latent construct that is persistent and stable within and across individuals.

This type of argument is consistent with the GTC as Gottfredson and Hirschi (1990) claim that all crimes and acts analogous to crime are a result of low self-control. Population heterogeneity argues that past behaviors do not actually influence future ones, but the underlying, individual characteristic is the cause of the presumed connection. Thus, any arguments that assume a casual mechanism between past and future behavior are flawed as this association is thought to be spurious.

State dependency on the other hand does suggest that past and future criminal behaviors are causally related. For instance, engagement in criminal behavior may lead to the deterioration of pro-social associations that are found in positive relationships, education, and/or lawful employment. These deteriorated circumstances can create both opportunities for future criminal activity in the form of criminal networks and/or create motivation to commit those acts. State dependency easily relates to Sampson and Laub's (1993) arguments about the power of turning points in offending trajectories. While they focused on turning away from crime, the possibility for a movement to crime through negative turning points is not conflicting with their desistance argument.

In their review of the literature concerning state dependency and population heterogeneity, Nagin and Paternoster (2000) argue that evidence exists that supports both processes and that a mixed perspective may be most applicable to the empirical evidence. Expanding from the idea of state dependency, if some specialization clusters have unique offending motivations and/or opportunities for offending, different specialization types may create unique causal links between past and future offending. This suggests that not only is past offending linked to future offending but offending specialization is linked to future offending specialization.

The empirical evidence concerning how past offense type influences future offense type offers some insight into how state dependency may relate to offense specialization. Blumstein and Cohen (1979) find that the probability for those who had been arrested for violent acts in the past to be arrested for more violent acts is higher than the probability that they will be arrested for nonviolent offenses. Likewise, Deane et al. (2005) find that while those with violent offenses tend to commit more violent acts, they also find that offenders of nonviolent offenses tend to engage in additional nonviolent acts.

This suggests that specialization may have continuity overtime. Piquero et al. (2002) find that local life circumstances differentially affect offending trajectories and groups. For instance, they find that stakes in conformity predict nonviolent but not violent offenses. This finding suggests that types of offenses may be differentially susceptible to the influences of local life circumstances, which may mean that state dependency could operate differentially by specialization cluster.

While the literature concerning population heterogeneity and state dependency offers some needed theoretical anchoring when discussing links between past and future antisocial behavior, research concerning escalation in offending is useful in better understanding how past offending behavior may translate into future behavior patterns. Some researchers contend that as offenders age they begin committing crimes of a less serious nature, but then escalate in offending seriousness in later life stages (Kelley et al., 1997; Loeher, 1996). Kelly et al. (1997) find that there is a steady progression from minor shoplifting at age 10 of their sample to violent offences just three years later, at age 13. The stepping stone from shoplifting to violence in their sample is property damage at age 12. In another important piece concerning escalation, Le Blanc and Frechette (1989) identify 5 developmental stages of escalation each with its own age and offending characteristics: emergence, occurring at age 8-10 with petty larceny; exploration, occurring at age 10-12 with vandalism and shoplifting; explosion, occurring at 13 with theft, burglary, and personal larceny; conflagration, occurring at age 15 with drug trafficking, auto theft, and armed robbery; and outburst, occurring at adulthood with fraud and homicide. Each stage's offenses increase in severity, and like Kelly et al.'s (1997) study, differential specialization is evident within each life stage.

While much of the escalation literature concerns progressions in general offense behavior, escalation in drug use has been a specific and popular topic of inquiry. Many studies of this type center on the gateway hypothesis (Kandel, 1975). This hypothesis suggests that adolescents who experiment with illegal or controlled substances develop these behaviors in a progressive fashion from less serious drugs to more serious substances. These behaviors are hypothesized to escalate from non-using to mild alcohol, to tobacco and hard alcohol, to marijuana, and finally to illicit drugs. Research testing this

hypothesis has found that drug and alcohol behaviors do tend to progress in intensity, though perhaps not in the exact sequence described above (Johnson, Boles, & Kleber, 2000; Kelley, Denny, & Young, 1999; Yamaguchi & Kandel, 1984a; Yamaguchi & Kandel, 1984b). Fergusson et al. (2006) find that marijuana use is positively associated with risk of illicit drug use, abuse, and dependency. Conversely, one study reports that marijuana use may precede mild drug and alcohol use (Mackesy-Amiti et al., 1997). In regards to two less serious drugs, another study finds that cigarette use may precede alcohol use (Chen et al., 2002).

Ginzler et al. (2003) note that because the gateway hypothesis does not suggest an unavoidable evolution from soft to hard drugs, desistance is possible under this framework. The gateway hypothesis and its surrounding literature offer some insight into the questions of the progression of antisocial behavior in general as it suggests an association between behaviors of increasing riskiness. While progression in drug and alcohol use need not be deterministic or reliant on a specific drug, use of drugs often increases in seriousness. This relates well to the CCP which suggests that as offenders continue offending their offenses become more serious (Blumstein et al., 1986).

Age of Onset

In addition to behaviors themselves influencing specialization change over time, age of onset and life stage are also likely to influence the likelihood and composition of behavior specialization. In particular, age at onset of offending is a topic that has received a great deal of interest. Studies show that age of onset and the patterns of offending after onset are highly variable (Farrington, 1989; Piquero, Farrington, & Blumstein, 2003). Furthermore, when it comes to criminal development, age of onset is thought to be very important for understanding subsequent trajectories of offending (Moffitt, 1993). Moffitt (1993) argues that life course persistent offenders have an early onset of offending while adolescent limited offenders have an onset period in adolescence. She continues to argue hat adult onset of offending is rare (Moffitt et al., 2001).

However, other developmental theorists, such as Thornberry (2005), do argue that adult onset offending occurs. Some argue that early onset is related to greater offending versatility (Loeber &

LeBlanc, 1990). Others find no evidence for this association (Cohen, 1986; Rojek & Erickson, 1982). However, in examining specialization and age of onset, Williams and Arnold (2002) find that those who have early onset ages are more likely to specialize in delinquency. This is in contrast to late starters who are more likely to specialize in burglary. In contrast, Piquero et al. (1999) find that age of onset does not predict specialization but length of offending career does. For instance, at greater lengths of offending time, specialization becomes more pronounced.

Studies that examine age of onset are often complicated by the type of sample employed. Zara and Farrington (2009) find that adult onset offenders, those who first offended after the age of 21, are more likely to have anxiety and neuroticism in childhood and adolescence compared to those who do not offend. However, they concede that the existence of late onset offending may be the result of sampling bias. Determining age of onset based on official statistics may simply indicate age of first official sanction; thus, self-report data may be more appropriate to use. Using both self-report and official data, they find support for a late onset offending group.

Life Stages

The evidence concerning age of onset's influence on specialization is mixed. However, there is more conclusive evidence that life stage and specialization are associated. Armstrong (2008a) argues that specialization trends across arrests found in previous studies are most likely due to changes in specialization arising with age, leading strong support for the importance of life stage and specialization. Another, earlier piece finds that different age brackets are associated with specific crimes (Stattin, Magnusson, & Reichel, 1989). Boys younger than 15 years of age are most likely to commit property crimes of personal gain, but men at older ages are more likely to commit more versatile crimes, including violent crimes. These studies indicate that specialization in antisocial behavior may be tightly associated with life stage.

Perhaps the most researched of life stages in criminology is adolescence. As adolescents grow into adult bodies but with childhood social limitations, antisocial behavior becomes quite normal, even as high as 90% (Caspi et al., 1993). Adolescence is also when the age crime curve reaches its peak (Hirschi

& Gottfredson, 1983), and many scholars hypothesize that individuals are the most at risk of criminal onset in early childhood and adolescence (Moffitt, 1993). Others have argued that the societal norms associated with life stages make adolescence a particularly vulnerable time for antisocial behavior as delinquent behaviors are properly associated with adolescence but are expected to be abandoned once it is time to adopt adult responsibilities (Massoglia & Uggen, 2010).

Specialization patterns may also be unique in adolescence. For instance, many studies that focus on the offending patterns of juveniles show very little relationship between past and future offense types (Bursik, 1980; LcBlanc & Frechette, 1989; Rojek & Erickson, 1982; Wolfgang, Thornberry, & Figlio, 1987). Escalation in juvenile offenses is rare, with any specialization being confined to minor property or status crimes (Farrington, Snyder, & Finnegan, 1988; Kempf, 1987; Lattimore, Visher, & Linster, 1994; LcBlanc & Frechette, 1989; Paternoster et al., 1998; Stander et al., 1989). More recent studies often conclude that offending versatility is higher at young ages of offending (Francis, Soothill, & Fligelstone, 2004; Piquero, Farrington, & Blumstein, 2003; Piquero et al., 1999).

However, when broader categories of behavior are used to determine adolescent antisocial behavior, more specialization may become apparent. Basen-Engquist et al. (1996) test Jessor's (1977) argument that adolescent health risk behaviors are part of a single behavioral syndrome. Tests of health risk behaviors may be more inclusive than tests of juvenile criminal involvement as they include such varied behaviors as swimming without a lifeguard, having promiscuous sex, doing drugs, and carrying weapons. They find that these risky behaviors clustered in five groups that varied in seriousness. Thus, they argue that a multidimensional rather than a one-dimensional structure of risk behaviors is appropriate. Similarly, and using a slightly younger sample, Reinke et al. (2008) test for clusters of specialization among aggressive behavior, oppositional behavior, and attention problems. A 4 class solution is appropriate for the boys in their sample, while girls have a 3 class solution. Boys have classes that represent academic and behavioral problems, academic problems only, behavioral problems only, and a no problem class. Girls do not have a class that represents only behavioral problems, but the other three

classes are present for girls. Thus, it would seem that when a broader definition of antisocial behavior is used, more specialization may be expected for adolescents.

Offending is not only found in adolescence, and offending throughout the life course is a concern for criminologists (Farrington, 1986; Farrington, 1991). Using adult samples, specialization in offending seems much more likely than it is for adolescents. Researchers identify specialized offending groups for fraud, violent offenses, serious property offenses, and drug offenses for adult samples (Brennan, Sarnoff, & Richard, 1989; Britt, 1996; Blumstein et al., 1988). Studies generally indicate that as offenders age specialization becomes more likely (Francis, Soothill, & Fligelstone, 2004; Piquero, Farrington, & Blumstein, 2003).

This may be a consequence of a developmental process whereby offenders learn which types of offenses reap the most reward or it may be a process of more casual offenders aging out of crime while those who are more criminally focused, and thus more specialized, remain to continue offending into adulthood (Cohen, 1986). An orthogenic argument contends that the maturation that occurs with age results in a greater patterning of behavior resulting in more specific offending forms (Le Blanc & Loeber, 1998; Werner, 1948). Using a sample of high risk youth, Yonai et al. (2010) find that specialization develops for those who have longer periods of offending as opposed to those with shorter periods of offending, which supports an orthogenic argument of development through maturation. Piquero et al. (1999) directly test whether offending specialization is a function of age or age of onset and conclude that the primary cause for greater offending specialization is age itself and not age of onset. The prediction that versatility in offending decreases with age is compatible with both the GTC and the CCP. The GTC posits that self-control is the reason for the decline while the CCP argues the change is due to routine activities (Yonai et al., 2010). All in all, increased specialization should be expected for those in adulthood as opposed to adolescence.

Emerging Adulthood

Most of the previous research concerning life stages and offending have made a strong distinction between adolescence and adulthood. However, recently, scholars have argued that another distinction

should be considered, emerging adulthood. Arnett (2000) defines emerging adulthood as a state for those roughly between the ages of 18-25. Emerging adulthood has distinctive qualities that make it different from adulthood in general, including heightened residential instability, school attendance, and insecurities about adult role identity. Arnett argues that this is the period of time when most young adults are exploring their identities; thus, it is a period of uncertainty and experimentation.

Because emerging adulthood has distinctive elements that separate it from adolescence and adulthood (Arnett, 2000; 2004), researchers have begun to explore how offending patterns may be unique to this time period. Massoglia and Uggen (2010) find that desisting from offending is an important developmental component to emerging adulthood and that the failure to do so blocks important adult transitions such as marriage and stable employment. Sampson and Laub (1993) argue for the importance of these transitions for desistance; thus, emerging adulthood may be a critical life stage to explore in terms of offending continuation. Furthermore, they find that the Glueck men between the ages of 17-25 and 25-32 experience the most suppression of offending due to important turning points such as marriage and employment. Arnett (2000) argues that the process of emerging adulthood is a relatively new phenomenon; thus, the Glueck study, which predominantly took place in the 1950s, may not be reflective of emerging adulthood today. However, the ages in which most individuals desist from offending is in the early 20s and by age 25 (Farrington, 2003). Thus, it would seem that emerging adulthood is a particularly important stage to consider in the offending process.

Empirical studies looking specifically at the versatility and specialization patterns in emerging adulthood are rare. Using an Australian sample composed of self-reported data from school-based, at-risk, and official offenders, Fagan and Western (2005) find that the mean level of offending reaches its peak in emerging adulthood for specific types of crimes, such as drug use and vehicle offenses. They also find that socioeconomic status alters the types of crimes committed and the ages of peak involvement. Those of lower status have crime curves that peak and drop off earlier. Within their sample, gender is also a conditioning variable. They find that at-risk women have later onset and longer offending periods than at-risk men while the school based sample indicate the opposite gendered pattern.

Others have found that emerging adulthood is linked to escalation and peaks in substance use as parental supervision drops, adult responsibilities are delayed, and exploration intensifies (Bachman et al., 1997; Johnson, O'Malley, Bachman, & Schulenburg, 2009). Young men may be more susceptible to increases in substance use during this period than young women (Chassin, Pitts, & Prost, 2002; Hicks et al., 2007; King & Chassin, 2007; Hussong & Chassin, 2004).

Some have argued that adult onset of offending is unlikely as past studies, largely conducted in the 1990s, offer little support for this (Moffitt, 2006). However, others posit that the development of emerging adulthood as a period of experimentation is a relatively new phenomenon and that emerging adulthood should be considered a possible period for offending onset (Mata & van Dulman, 2011). This period of onset is likely related to adolescent parenting styles that stifle personal exploration, leading to more reckless behavior in emerging adulthood (Ibid).

Gender Differences

Researchers have only just begun to explore the gender differences that may be present in offending patterns across life stages. Fagan and Western (2005) state that too few studies have included enough males and females to determine "whether sex differences vary according to the type of crime committed or population (high or low risk) studied" (62). However, some evidence does suggest that women and men's crime trajectories differ in some important ways. Some find that women may reach their offending peak earlier than men (Moffitt et al., 2001). Further, women are more likely to desist from crime than men, and they also do so at earlier ages (Giordano, Cernkovich, and Rudolph 2002; Kruttschnitt, Gartner, and Ferraro 2002; Moffitt 1993).

Limitations of Previous Studies

Like studies of specialization in general, previous studies concerned with age of onset, life stage, and specialization have some limitations. First, these studies often use official arrest statistics. The use of official arrest statistics when asking questions of age of onset may be problematic because what is truly being measured is neither the behavior nor a respondent's report of the behavior but an arrest. Using official statistics to determine age of onset makes it difficult to know if the behavior pattern is present but

officially undetected (Elander et al., 2000). When studying late onset offenders, McGee and Farrington (2010) find that the type of offenses that characterize the offending patterns for late onset offenders are ones with lower arrest rates. Thus, by using self-report data instead of official arrest statistics, researchers are able to make more concrete observations about offending onset as well as type of offending.

A broader definition of offending behavior can also address questions of onset of offending and specialization across life stages. When researchers limit the scope of negative social behavior to just those behaviors criminally sanctioned, the scope and possibility of detecting specialization is limited. This has been demonstrated with specialization patterns for adolescents. Studies that use narrower definitions of negative behavior conclude that little specialization occurs in adolescence (Bursik, 1980). Studies that use broader definitions find more nuance in regards to specialization in adolescent samples (Basen-Engquist, Edmundson, & Parcel, 1996; Reinke et al., 2008). A broader definition of negative behavior allows for a greater level of complexity and thus a deeper understanding of specialization onset and life stage variability.

Furthermore, many studies that are concerned with age of onset and offending at different life stages predominantly use the forward specialization coefficient, which may be problematic (Yonai, Levine, & Glicksohn, 2010). This statistic technique is an aggregate measure and does not allow for observation at the individual level (Ibid). While the forward specialization coefficient is well suited for making macro level claims about the official offending specialization trends of offenders over time, it does not allow for individual level nuances. Furthermore, as researchers using the forward specialization coefficient tend to categorize offending behavior in broad categories (Ibid), more specific specialization arguments are difficult to make. A statistical technique that allows for more complexity in offending measures as well as a closer focus on the individual will add nuance to this area of research.

Theoretical Predictions for Research Question #2

Like the theoretical predictions of general specialization within discreet time points, the predictions concerning change over time offer contradictory and complimenting hypotheses. According to the CCP, adolescent membership in any offending status will be associated with greater specialization and

seriousness over time. Similarly, the DTT posits that early entry into an offending status will increase the likelihood of remaining in an offending status throughout adulthood and that early entry will also increase the likelihood of being in a versatile/violent group. Because men are more likely to be violent, they are also more likely to be early and persistent offenders than women. While neither the GTC nor the AGTISC suggest specialization is likely, the AGTISC does suggest that for those who engage in antisocial behavior, young adulthood will be positively associated with desistance.

CHAPTER 5

RQ3: How do antisocial behavior patterns influence desistance?

Lastly, the final research question of concern in this study is tightly related to specialization change over time. However, rather than focusing on change over time in general, this question focuses on an end result, specifically desistance. In other words, how does membership in specific specialization groups and membership change over time influence the likelihood of desistance in young adulthood?

Defining Desistance

Desistance is defined as the cessation of offending behavior. However, just how desistance occurs and what exactly constitutes desistance has had more theoretical debate than one might expect. Some disagreement remains whether desistance should be thought of as an event or a process (Maruna, 2001). For instance, desistance may only occur once all offending ceases or it may occur over time through a series of stages. Defining desistance as an event becomes problematic as some argue that desistance can never be judged as final until there is no possibility for continued offending, which may only be the case at the death of the offender (Farrington, 1979). While this may be the most definitive point of desistance, for questions of research, it is not a very useful construction. Most longitudinal studies of offending patterns are able to distinguish between living individuals who continue to offend and others who do not.

Others identify key elements of desistance that lend credence to the idea of desistance as a process. For instance, intermittency in offending is a complication that must be addressed when asking questions concerning desistance (Nagin & Land, 1993). Intermittency in offending may offer a false impression of desistance as it is a pattern of nonoffending within a larger pattern of criminal behavior. Longitudinal designs that cover large periods of time may help to identify intermittency in offending.

Another conceptualization of desistance allows for both event and process in the definition. Maruna and Farrall (2004) argue that desistance occurs as both primary and secondary desistance. For instance, primary desistance may just be a temporary break in offending. However, secondary desistance

involves the adoption of a new role identity as a law abiding person, which is a lasting change. In harmony with the concepts of intermittency as well as primary and secondary desistance, Le Blanc and Loeber (1998) define desistance as processual in nature. They developed this definition within the CCP, and thus, it has that paradigm's hallmarks of process and the event framing of onset, continuation, and desistance. They define desistance as a process that is typified by deceleration, specialization, and de-escalation. According to this perspective, an offender can be considered desisting from crime when their criminal activity occurs at lessened frequency, becomes more specialized, and/or becomes less serious in nature.

Many criminological theories address desistance. Sampson and Laub's (1993) theory of age graded informal social control is chiefly concerned with questions of desistance. They argue that pro-social and meaningful turning points are the catalyst for desistance through the social controls that result from those changes. Later research suggests that the mechanisms by which these turning points lead to desistance may also be shifts in routine activities and vary by the quality of the new life circumstance (Laub, Nagin, & Sampson, 1998; Warr, 1998).

Gottfredson and Hirschi (1990) also address the possibility of desistance. While the GTC contends that the latent cause of crime, low self-control, is primarily set at an early age and those with lower levels of self-control will be more likely to continue offending and engaging in acts analogous to offending, they argue that with age, the behaviors that result from low self-control may be more reflective of the acts analogous to crime and not crime itself.

Desistance issues are present in Moffitt's theory as well. Life course persistent offenders are not likely to desist, but the adolescent limited offenders do desist from offending behavior as they move from adolescence to adulthood. These offenders desist because they do not have the neuropsychological and severe social deficiencies of the more serious offending group and are able to grapple with the social responsibilities and expectations that come with adulthood.

Offending Specialization and Desistance

Some studies find that particular types of offending patterns are more likely to end in desistance than others. For instance, one study finds that offenders who desist from offending are more likely to specialize in drug and miscellaneous offenses rather than more serious ones (Armstrong, 2008b). However, this study does not test for changes in specialization groups over time, so it is not clear if this association is a result of the type of behavior itself or a progression of behaviors that result in the behavior types most associated with desistance. In other words, does the tendency to engage in drug and miscellaneous offenses lead to a greater likelihood of desistance or is this the end product of de-escalation which leads to eventual desistance? Relatedly, Moffitt (1993) anticipates that those with greater specialization in minor offenses will be more likely to desist than those with greater versatility and seriousness in offending. However, the continued offending of the adult persistent group is a function of their neuropsychological and socialization deficiencies not necessarily the versatile and serious nature of their offending.

Displacement

Related to but separate from desistance is within person displacement. This is a shift from engagement in some forms of crime to others (Massoglia, 2006). Essentially, displacement is the switching of offense specialization. Both Gottfredson and Hirschi (1990), and Moffitt (1993) acknowledge the possibility of displacement within offending. Gottfredson and Hirschi argue that low levels of self-control may manifest in not just criminal offending but acts analogous to crime. Moffitt's (1993) life course persistent offenders fail to desist as the adolescent limited offenders do. Instead, these offenders engage in a wide range of crimes. Massoglia (2006) argues that offenders can desist criminal activity, continue offending in similar patterns, or display a displacement of offending in which individuals switch from certain crimes to others. In his study, he finds that while most offenders move away from violent crime over time, they do not desist from crime altogether, but initiate or continue illicit substance use.

Massoglia (2006) distinguishes displacement from heterotypic continuity, which argues that underlying or latent psychological factors may manifest at different life stages as specific offending

behaviors (Nagin & Tremblay, 2001). Massoglia argues that displacement occurs as a function of aging and not a manifestation of an underlying factor. He finds that displacement is part of the aging process with violent individuals moving away from violent crimes to drug consumption, and thus, he concludes that displacement is an alternative to desistance for some offenders. However, he does not hypothesize how displacement may be a part of the desistance process.

De-Escalation

Desistance and displacement are also closely related to de-escalation in offending. While escalation in offending is often detected and has received a great deal of attention (Blumstein et al., 1986; Le Blanc, 2002), de-escalation is much less studied. De-escalation, along with escalation, is part of the cycle of offending which Blumstein et al., (1986) describe. As an offending career unfolds, it is typified by changes in offending frequency, type, and seriousness which can be characterized as escalated and de-escalated in nature.

Empirical evidence suggests that individuals de-escalate their offending as the career progresses. Le Blanc et al., (1991) describe partial desistance which occurs through the progressive lessening of seriousness of offense such as from theft to status offences. However, this study only focuses on adolescents, and thus its scope is limited. A study that uses the Gluck (1930) data finds that 45% of the offenders show signs of de-escalation, and only 16% desist completely (Robins, 1966). Loeber and Le Blanc (1990) find that those types of crimes that have earlier onset tend to have earlier desistance times as well, while those with later onset have later desistance. For instance, desistance from larceny, vandalism, and shoplifting begins to occur in early adolescence (13 years +). Next, are more serious crimes such as sex offenses and auto theft (16 years +). Following this stage, comes desistance from burglary (18/19 years +) and then homicide and fraud (20 years +). However, while they offer median ages of desistance for a wide range of offending acts, it is not clear what, if any, connection these offenses have to one another. My dissertation will be able to expand the literature of de-escalation and displacement through testing for links between patterns of de-escalation or displacement and desistance.

Gender Differences

As for the other two research questions discussed, studies specifically addressing any gender differences in how offending specialization relates to desistance are rare. Studies that address desistance in female offenders note that it is especially important to understand the behavior of law as the legal system has had historic tendencies to vilify, dismiss, or patronize women in unique ways (Belknap, 2007; Uggen & Kruttschnitt, 1998).

In reviewing Sampson and Laub's (1993) theory of desistance, Giordano et al., (2002) develop a cognitive theory of desistance that utilizes the symbolic interactionist perspective. They note that neither marriage nor employment were related to desistance for the women in their sample, but that new and positive role identities helped shape female desistance. Rumgay (2004) also emphasizes the importance of psychological scripts for women desisters.

Others have argue that turning points are important for female desistance as they are for male desistance, but that these turning points may differ from those that have been found to be important for male offenders. For instance, the absence of a romantic partnership is shown to be beneficial for some female offenders (Leverentz, 2006). This is because romantic pairings for female offenders are more likely to be with antisocial partners who may not offer the same kind of turning point benefits that were detected by Sampson and Laub (1993) for men. While studies suggest that desisting may differ for men and women, no study has specifically addressed how crime de-escalation, displacement, and/or desistance may differ by gender.

Previous Studies' Limitations

Previous studies that have addressed de-escalation, displacement, and these processes' possible associations with desistance have several limitations. For example, previous studies focus on trajectory paradigms which limit offending questions to quantitative ones rather than qualitative ones. Massoglia (2006) notes that most studies that address offending desistance do so from a trajectory model which is designed to answer questions of rate and frequency of behavior but not shifts in behavior. Thus, these studies are unable to detect displacement which may be skewing researchers' perceptions of desistance.

Statistical techniques that are able to measure qualitative changes in offending over time are preferred to answer questions of displacement. This study uses a sophisticated latten model technique, latent transition analysis that enables the identification of latent statuses within discrete time points and qualitative shifts in status membership over time.

Finally, life stage differences have not been adequately explored in previous work (Massoglia 2006). This study uses a sample that spans the ages between 10 and 24, which allows for the examination of how de-escalation, displacement, and desistance vary across adolescence and emerging adulthood, resulting in a more detailed picture of how these processes differ by life stage and onset of offending.

Theoretical Predictions for Research Question #3

Concerning the link between antisocial behavior specialization, patterns of specialization change over time, and desistance, the CCP and the DTT offer some guidance concerning which individuals are the most likely to desist from antisocial behavior.

First, the CCP suggests that shifts from more specialized and serious statuses to less specialized and less serious ones will be positively associated with desistance. In other words, de-escalation in behavior will be related to desistance.

On the other hand, the DTT argues that those who are members of versatile and violent groups are likely to remain in those groups over time. However, those who are members of more specialized and nonviolent groups are likely to desist in emerging adulthood. This group of desisters is likely to be comprised of mostly women because of men's higher probability to engage in violence.

In the following chapters, the current's study's unique data and methodological strategy are presented. Both the sample and the statistical analysis employed help to address some of the limitations of past research. For example, most previous research concerning specialization have utilized high risk samples and official definitions of offending, which offer a limited understanding of antisocial behavior specialization. To address this, the current study utilizes longitudinal data from a more diverse sample, the Family and Community Health Study (FACHS). While many of the FACHS respondents have not engaged in truly serious forms of criminal behavior, by the final wave of data collection, 47% had had

contact with the criminal justice system. Thus, FACHS offers the opportunity to assess the antisocial behavior patterns of both high and low risk individuals in a self-report format. Furthermore, the FACHS respondents have been followed from early adolescents to young adulthood, which is an expanse of time that few studies of specialization can claim (Massoglia 2006).

Another common limitation that the current study addresses is the over-use of count-based statistical models, such as the forward specialization coefficient (Farrington, 1986) or the diversity index (Agresti & Agresti, 1978) in conjunction with official crime reports (e.g. Armstrong, 2008a; Armstrong, 2008b; Miethe, Olson, & Mitchell, 2006; Piquero et al., 1999; Stander et al., 1989; Sullivan et al., 2006; Williams & Arnold, 2002). Rather than utilizing a count-based approach, which tend to aggregate to versatility, the current study emphasizes a thematic model by employing a latent transition analysis (LTA). The LTA allows for both the disaggregation of data while speaking to longitudinal change as well as a broader use of antisocial behavior indicators over time. Both the FACHS sample and the LTA approach are discussed in greater detail in the following chapters.

CHAPTER 6

Data and Methods

Sample

Data for this analysis come from The Family and Community Health Study (FACHS), a multisite panel study of African American children and their families. Begun in the mid-1990s, the study examines the roles of parents, personality and peers on the development of high-risk behavior. The data has been collected throughout six waves. Wave 1 was conducted in 1997, wave 2 in 1999, wave 3 in 2002, wave 4 in 2006, wave 5 in 2008/2009, and wave 6 in 2010. For this study, I have used data from all six waves of data. In wave 1, the respondents were ages 10-11; in wave 2, 12-13; in wave 3, 14-15; in wave 4, 17-18; in wave 5, 20-21, and in wave 6, 22-24. The numbers of respondents per wave are as follows: wave 1, 897; wave 2, 779; wave 3, 768; wave 4, 714; wave 5, 689; and wave 6, 661. The longitudinal nature of this data allows for measurements at dispersed time periods. This allows for disaggregation of the data, which is essential to avoid aggregating to versatility (McGloin, Sullivan, & Piquero, 2009).

Waves 1 through 6 are utilized for this study because at wave 1 the respondents are entering adolescence and, thus, entering the peak life stage for antisocial behavior (Hirschi & Gottfredson, 1983). By wave 6 they are in emerging adulthood. Using these waves allows for the incorporation of emerging adulthood as an important life stage that many studies of offense specialization, displacement, and desistance have overlooked (Massagolia, 2006). Furthermore, as it is rare to have a longitudinal sample from adolescence to adulthood (King & South, 2011), the use of FACHS data helps address questions that have been difficult to answer in the past.

FACHS respondents were selected through a recruitment of families from 1990 Georgia and Iowa census blocks that varied on racial composition and economic status to assure that the respondent children lived in a wide variety of family and community settings. At initial recruitment, households were randomly selected from these block groups for participation from rosters of fifth graders in the public

school system, and when participation was declined, other households were randomly selected from the block groups (Simons et al., 2002). At the time of the first wave of collection, respondents resided in either Georgia or Iowa, but by the 6th wave of collection, respondents had dispersed to over 20 different states.

Seventy-two percent of the eligible Iowa families were interviewed, as were sixty percent of the families in Georgia. A test of generalizability, comparing the block groups included for random selection to those that were not, revealed no significance difference for the Iowa areas. The included block groups in Georgia had slightly lower family income levels due to the sample having a somewhat underrepresentation of high-income areas.

Data were collected during face to face interviews, most of which occurred in respondents' homes. All interviewers were African American. Each interview was conducted privately between one participant and one interviewer. Interviewers read each question aloud as it appeared on a computer screen and respondents entered answers privately on a key pad. Information from two primary surveys is used for this study. The Diagnostic Interview Schedule for Children (DISC_IV) is used to diagnose behavioral and psychiatric disorders in childhood and adolescence (Shaffer et al.,, 1993). In the current study, the majority of antisocial behaviors examined in waves 1-4 come from this survey. For the last two waves, this questionnaire became less applicable because the respondents had aged into adults. For these waves, the standard questionnaire was used to capture antisocial behavior patterns.

This sample is especially relevant for this study because of the diversity of behaviors displayed by the respondents. Most research concerning offending specialization uses only high risk samples, which is problematic for reasons of official recording of crimes as well as gender and racial biases. However, using a primarily low risk sample is also problematic because the instances of antisocial behavior may be too rare for substantive analysis. This sample, though including low risk individuals, also has many high risk individuals represented. For example, in the final wave of data, 47% of the sample had experienced contact with the criminal justice system through being arrested, 38% had spent

time in jail, and 3% had spent time in prison. Thus, this sample captures a wide spectrum of individuals who are likely to have engaged in a wider range of more serious antisocial behaviors.

Overview of Measures

For waves 1-6, a range of delinquent, criminal, and antisocial behaviors are used. In order to capture the widest range of antisocial behaviors, measures were included that represent acts ranging from purely risky, such as failing to wear a condom, to truly criminal, such as auto theft. The use of a wide range of antisocial acts and attitudes facilitates the creation of specialization themes, which is largely lacking in the current literature (Trojan & Salfati, 2010). As this sample consists of both low and high risk individuals, some behavior items had low affirmative response rates. To utilize as much of the available data as possible, single antisocial behaviors indicators were combined into larger umbrella items by examining each item by closest association at each wave. This was achieved by grouping items into like categories by first examining the face validity of the potential grouping variables and then conducting simple bivariate correlations to insure that items were indeed related. Those groupings that had both correlations in a positive direction and similar descriptive characteristics were combined into larger umbrella indicators.

For example, a few different single items measured acts committed against others' property. These measures included having stolen property, vandalized another person's place or possession, and/or broken into a building or automobile. As these items were both logically similar and displayed correlations in a positive direction, they were combined into a larger category that was titled "acts against property." If an individual had reported engaging in one, a few, or all of those acts in the past 12 months, he/she was recorded as having engaged in an act against property.[2]

Behaviors and their meanings change through adolescence and adulthood. For example, while drinking alcoholic beverages at age 10 is considered not only antisocial but illegal, at 21, mild to moderate drinking is normal (White et al., 2006). Thus, the significance of certain behavior evolves over time.

[2] To see the correlation results for items within each indicator, please refer to the appendix, pages 145-162.

Because the latent statistical model employed for this study, latent transition analysis, is nonparametric, changes in variables over time pose no problem. The variables are not the direct focus of the analysis but are the indicators of latent statuses. Latent status membership is allowed to change across waves, not necessitating consistent variables over time. This is largely because the model reveals the probability of movement between discreet states not continuous group trajectories (Collins, 2006; Muthén & Muthén, 2000). Thus, the more appropriate use of dynamic antisocial variables is utilized, allowing for a more robust discussion of antisocial behavior throughout adolescence and young adulthood.

Antisocial Tendency Indicators

Aggressive Orientation. Aggressive orientation (A.O.) was measured in all 6 waves of data collection. This scale measures the extent to which an individual utilizes violence as a strategy for handling conflict (Simons et al., 2011; Simons et al., 2012). A.O. is included in this analysis because it is a good indication of how accepting an individual is of behaviors that, if acted out, will cause harm to others and themselves. Studies suggest that aggressive attitudes are linked to aggressive behaviors (Ajzen & Fishbein, 2005). For waves 1-4 (ages 10-18), A.O. is a scale constructed from 10 items. For waves 5 and 6 (ages 20-24), 6 more items were added to this scale and 2 were no longer available. For all waves the respondents could (1) strongly agree, (2) agree, (3) disagree, or (4) strongly disagree with each statement. Statements include: Sometimes, you have to use physical force or violence to defend your rights; people will take advantage of you if you do not let them know how tough you are, and people tend to respect a person who is tough and aggressive.[3] For each wave, the alpha exceeded .7, was standardized, and items were reversed coded so that larger values indicate greater tendency toward aggressive attitudes.

Problem Behavior at Home and/or School. Problem behavior at home and/or school is constructed from a series of questions concerning conduct disorder as measured in the DISC_IV (Shaffer et al., 1993). These behaviors are characterized by their association with minors and were only measured from waves 1 to wave 4. If a respondent had skipped school, had been reprimanded at school, broke home curfew, and/or had run away from home in the past 12 months, they were coded as having had engaged in problem

[3] For a detailed list of scale items and other variables by wave, please see the appendix.

behavior at home or school. Each of the behavior variables are dichotomously coded so that 1 (Engaged) represents engaging in the behavior in the past 12 months, and 0 (Abstained) represents abstaining from that behavior.

Acts against Property. For waves 1-4, questions concerning acts against property come from the DISC_IV (Shaffer et al., 1993). Those who reported having had stolen someone's property and/or vandalized another person's possession in the past 12 months were coded 1 (Engaged). Those who did not report either activity were coded as 0 (Abstained). For waves 5 and 6, questions concerning acts against property came from the standard interview and included having had broken into someone's property and auto theft along with having had stolen and/or vandalized another's property. These questions asked the respondent to report how many times in the past year they had engaged in the behaviors. The responses were recoded so that if the respondent had engaged in any or all of the activities at least once in the past year, they were coded as 1 (Engager). If they reported no activity, they were coded as 0 (Abstainer)

Psychological Antisocial Behavior. These measures were only available through the questions constructed from the DISC_IV (Shaffer et al., 1993) for waves 1-3 (ages 10-15). These questions concern mild psychological antisocial behavior of the nature that could harm interpersonal relationships. Respondents were asked if they had taken part in any of the following behaviors in the past year: talking back to someone in authority, refusing the authority of an adult, being purposefully annoying, blaming others for their own mistakes, being mean and/or retaliatory. If the respondent reporting engaging in any of these behaviors, they were coded as 1 (Engager). Otherwise, they were coded as 0 (Abstainer).

Lying . Lying is a single item that indicates whether the respondent misled another person to either obtain something desirable or to avoid something undesirable. This question too came from the DISC_IV, and was only available for waves 1-4 (ages 10-18). If the respondent reported having had lied in the past year, they were coded as 1 (Engager). They were coded as 0 (Abstainer) if they had not.

Violence . For waves 1-4 (ages 10-18), questions about violence came from the conduct disorder questionnaire. Acts include being physically cruel to another person and/or animal[4], physically bullying another person, engaging in physical fights, and/or using a weapon in the past year. For waves 5 and 6 (ages 20-24), the standard questionnaire record how many times in the past year the respondent engaged in a physical fight, pulled a gun on another person, used a gun to hurt another person, or used another weapon to hurt another person. If the respondent reported engaging in any of these behaviors in the past year, they were recorded as 1 (Engager). If no behaviors were reported, they were recorded as 0 (Abstainer).

Substance Use. Measures of substance use varied across waves as respondents aged and a wider range of substance use behaviors become legally and/or socially acceptable. At wave 1 (age 10/11), respondents were coded 1 (Engager) if they had reported using alcohol and/or tobacco products and 0 (Abstainer) if they had not. At this time point, too few individuals reported any kind of illicit drug behavior for inclusion. At wave 2 (age 12/13), marijuana use was included along with alcohol and tobacco. At waves 3 and 4 (age 14-18), a measure of engaging in excessive alcohol use was included along with marijuana and tobacco. Finally, at waves 5 and 6, those who reported drinking alcohol to excess and/or using marijuana were coded 1 (Engager) while those who did not report these behaviors in the past year were coded as 0 (Abstainer).

Measures indicating drinking to excess were available in the conduct disorder questionnaire for waves 3 and 4, and the standard questionnaire for waves 5 and 6[5]. These include feeling physically sick because of drinking, experiencing social conflict because of drinking, and being unable to stop drinking when it was desired. Respondents who answered yes to one or more of these questions were coded as having had drank to excess in the past year. This excessive drinking measure was then used in conjuncture with the marijuana question in waves 3-6 (ages 14-24).

---

[4] Person and animal cruelty was excluded from the wave 4 violence measure because in this wave it was not positively correlated with the other violence measures. The affirmative count was less than 10 and was not included as a single item variable either.

[5] Please refer to the appendix for a detailed list of questions indicating drinking to excess, pages 155-156.

Risky Sexual Behavior. Beginning in wave 4 (age 17/18), questions concerning sexual behavior became available in the standard interview. Those who reported having had sex without a condom and/or having sex under the influence of drugs or alcohol at least once in the last year were coded as 1 (Engager). All others were coded as 0 (Abstainer).

Romantic Partner Emotional Abuse. Waves 4-6 (ages 18-24) measure behaviors concerning interaction with romantic partners. At wave 4, about 49% of respondents reported having a romantic partner. At wave 5, 51% reported this kind of relationship; and at wave 6, 55% percent did. Romantic partner emotional abuse indicates whether a respondent has engaged in emotional hostility toward their romantic partner in the past 12 months. This could include insulting, swearing, and/or shouting in anger at one's romantic partner. Those who reported engaging in one or any of these behaviors over the past month were coded as 1 (Engager) while the others were coded as 0 (Abstainer).[6]

Romantic Partner Physical Abuse. Like emotional abuse, physical abuse toward a romantic partner was measured for waves 4-6 (ages 18-24). Those that reported hitting, throwing things, and/or striking their romantic partner with an object in the past month were coded as 1 (Engager) while all others were coded 0 (Abstainer).[7]

Making Money Illegally. Waves 5 and 6 (ages 20-24), included a single item question in the standard questionnaire that measured whether the respondent had made money illegally in the past year. Those that answer "yes" were coded as 1 (Engager). Those who answered "no" were coded as 0 (Abstainer).

Driving Under the Influence of Alcohol or Drugs. This question was only available in waves 5 and 6 (ages 20-24) and asks if in the past year the respondent has driven under the influence. Those that answer "yes" were coded as 1 (Engager). Those who answered "no" were coded as 0 (Abstainer).

Methodological Approach

This study utilizes latent transition analysis (LTA), which is a longitudinal extension of latent class analysis (LCA). Latent measurement theory is central to both LCA's, and LTA's, development. This

[6] At wave 4, the romantic partner questions were slightly different. These included getting angry with one's romantic partner, criticizing one's romantic partner, and shouting/yelling at one's romantic partner in anger.
[7] At wave 4, because only the hitting item was asked, this is a single item measure.

theory argues that an underlying grouping of variables (i.e. a latent class) can be inferred from a set of indicators even though it is not possible to observe these groupings directly (Goodman, 1974; Lazarsfeld & Henry, 1968; Muthén, 2001; Reboussin, Reboussin, Liang, & Anthony, 1998; Velicer, Martin, & Collins, 1996). LCA uses statistical likelihood methodology to estimate parameters for latent class profile, size, and membership probabilities (Francis, 2012; Muthén & Muthén, 2012). Unlike some other grouping techniques, such as factor analysis, LCA, as well as LTA, is a person-centered method that identifies individuals with similar scores on a given set of variables and then organizes these individuals into like groups (Macy, 2008; Neely-Barnes, 2010).

The integration of autoregressive modeling, or Markov modeling, into the traditional LCA models allows for an analysis of latent membership change across time. Thus, a LTA is a LCA that estimates discrete classes, membership in the classes, and transitions between the classes longitudinally (Nylund, Muthén, Bellmore, & Graham, 2006; Thompson, Macy, & Fraser, 2011). In LCA, individuals are assumed static in their class membership, but within a LTA, individuals are allowed to change class membership overtime (Lanza, Patrick, & Maggs, 2010). Because of this more dynamic class association, Lanza et al., (2010) suggest that the term "latent statuses" should be utilized rather than "latent classes" when conducting a LTA as this better reflects the possible transience of group identification.

Latent statuses and changing associations over time are determined through the estimation of three probabilities. The first probability is for latent status membership, which is estimated at $t > 1$ times (Ibid). For the current analysis, this will reflect the proportion of people determined to be associated with each antisocial behavior group at each time period.

Second, item-response probabilities return the link between the observed variables of the latent status at each time period and latent status membership (Ibid). Using these item response probabilities, one can best classify the latent status. For instance, a status whose members have low probabilities of engaging in any antisocial behavior may be in contrast to a group whose members are low scoring on most behavior indicators but have a high probability of engaging in substance use. In this case, the first

status could be characterized as an “abstaining” group while the second may be considered the “substance use” group.

Finally, the third probability estimation concerns the probability of transition. In other words, this concerns the probability of moving from a particular latent status at time t to another latent status at t+1. The transition probability is considered along with the probability for latent status membership to reveal longitudinal change (Ibid).

As with any statistical technique, model assumptions and variable requirements should be considered when conducting a LTA. Traditionally, variable types have been restricted to certain latent variable modeling techniques. For instance, LCA was only used with categorical or binary indicators, and latent profile analysis (LPA) was utilized when variables could be assumed to be continuous. When these techniques were expanded to include longitudinal data, the same indicator restrictions applied (Muthén, 2001; Reboussin, et al., 1998; Velicer et al., 1996). However, the statistical software, Mplus, allows for a much more robust use of indicators. Mixture modeling techniques in Mplus, including LTA, allow for the use of continuous, censored, binary, ordered categorical, and count variables to be used and in any combination (Muthén & Muthén, 2012).

Because LTA is a nonparametric model its overall assumptions are few and it has no distributional assumptions (Flaherty, 2007). However, it does assume that individuals within a status are homogenous in their response distributions (Ibid). The most influential assumption of LCA and its longitudinal extension, LTA, is that of conditional independence or that membership status is assumed to account for all item covariation (Lazarsfeld & Henry, 1968). However, Flarherty (2007) notes that this assumption has become outmoded as residual item dependence is allowed when substantively important (Hagenaars, 1988; Hayduk, 1987; MacCullum, 1986). This is often the case with sociological or psychological indicators as associations between indicators is often expected. In fact, in recent years, LTA has been successfully used with many questions concerning latent status of sociological and criminological concern. For instance, Carbone-Lopez, Rennison, & Macmillan (2011) utilized LTA to

examine patterns of intimate partner violence over time while Lanza et al., (2010) examined substance use behavior patterns for college students.

Mixture modeling in Mplus is especially useful for self-report data because of its sophisticated handling of missing data. When conducting a LTA in Mplus, missing data are handled with maximum likelihood (ML) procedures for continuous, censored, binary, ordered categorical, unordered categorical, counts, or combinations of these variable types (Muthén & Muthén, 2012). Maximum likelihoods utilize all available data-points to avoid listwise deletion, which often leads to data biases (Enders & Bandalos, 2001). While ML does assume that data are missing at random, even when this assumption is not met, ML procedures are still considered preferable to casewise deletion (Pennsylvania State Methodology Center, 2012). ML estimates the parameters for which there is complete information, but then also uses data derived from partially completed data to estimate parameters that are missing (Enders & Banadalos, 2001). This procedure is not accomplished through data imputation rather the procedure replaces missing data points for Y with the conditional expectation of Y given X (Ibid).

LTA and the Current Study

To conduct the LTAs for the current study, Mplus version 6 was used (Muthén & Muthén, 2012). All data manipulation, coding, recoding, and post-hoc gender crosstabultions were conducted in SPSS version 21. First, data was restricted to individuals who were present at the last time point, wave 6. 656 individuals (388 women and 268 men) answered the antisocial behavior questions at the final wave of data collection, and waves 1-5 were restricted to include only those individuals with available data at wave 6. See tables 1-3 for descriptive information about the final sample and the antisocial behavior indicators. Restricting the sample to just those available at the final wave assures that the transition pathways examined have the same ending.

In order to guarantee that respondents' missing data did not pose attrition bias, independent sample t tests were performed which considered possible differences concerning key background variables and the antisocial behavior indicators at the first wave of data collection between those respondents who dropped out of the sample over time and those who did not. No significance difference

was determined for respondents' primary care giver's per capita income or education. Of the antisocial behavior indicators, no significant difference was found except for one indicator, home and school problems. The attrition sample was more likely to report problems at home and school than those who remained in the sample. In many forms of analysis this could pose a potential bias. However, the multiple indicator strategy employed through LTA helps to alleviate potential bias. Finally, female respondents were more likely to remain in the sample than male respondents.[8]

Because of low affirmative counts on many of the antisocial behavior indicators, particularly those characterized by the most serious forms of deviance, separate analyses by gender were not possible. All LTA models were run using both genders, and post-hoc analyses of the results were conducted to discuss gender difference in status membership and transition pathways.

[8] Please see the Appendex, for the t test results.

Descriptive Tables

Table 1: Wave 1 – Wave 3 Descriptions

	Wave 1 (Ages 10-11)		Wave 2 (Ages 12-13)		Wave 3 (Ages 14-15)	
	Boys	Girls	Boys	Girls	Boys	Girls
A.O.						
Mean(SD)	.04(.96)	0(1.1)	.10(1.0)	-04(1.0)	-.07(1.1)	.02(.985)
Valid N	286	387	250	358	251	360
Problem Behavior at Home/School						
Engaged	55	51	107	136	137	164
Valid N	264	387	250	357	251	360
Acts against Property						
Engaged	16	22	18	133	72	115
Valid N	264	387	250	357	251	360
Psychological Antisocial Behavior						
Engaged	80	113	81	133	72	115
Valid N	264	387	250	357	251	360
Lying						
Engaged	16	17	23	44	32	36
Valid N	264	387	249	357	251	360
Violence						
Engaged	36	36	22	44	21	21
Valid N	264	387	250	357	251	360
Substance Use						
Engaged	8	11	10	39	53	93
Valid N	264	386	250	357	252	360
Total N	268	388	268	388	268	388

Table 2: Wave 4 Descriptions

	Wave 4 (Ages 17-18)	
	Men	Women
A.O.		
Mean(SD)	02 (1.0)	-.02 (.98)
Valid N	239	363
Problem Behavior at Home/School		
Engaged	57	82
Valid N	239	362
Acts against Property		
Engaged	13	24
Valid N	239	362
Lying		
Engaged	28	21
Valid N	239	362
Violence		
Engaged	8	10
Valid N	239	362
Substance Use		
Engaged	95	155
Valid N	239	363
Risky Sexual Behavior		
Engaged	89	175
Valid N	238	359
RP Emotional Abuse		
Engaged	7	181
Valid N	114	209
RP Physical Abuse		
Engaged	7	44
Valid N	114	209
Total N	268	388

Table 3: Wave 5 & Wave 6 Descriptions

	Wave 5 (Ages 20-21)		Wave 6 (Ages 24-25)	
	Men	Women	Men	Women
A.O.				
Mean(SD)	-.30 (2.40)	-.55 (2.04)	.13 (1.10)	-.09 (.96)
Valid N	241	369	268	388
Acts against Property				
Engaged	40	60	31	41
Valid N	241	368	263	385
Violence				
Engaged	65	73	53	50
Valid N	241	368	264	387
Substance Use				
Engaged	146	167	153	189
Valid N	241	368	260	387
Risky Sexual Behavior				
Engaged	159	249	181	274
Valid N	241	366	262	383
RP Emotional Abuse				
Engaged	74	138	98	159
Valid N	136	199	143	215
RP Physical Abuse				
Engaged	9	35	3	24
Valid N	136	199	142	215
Making Money Illegally				
Engaged	52	29	42	29
Valid N	240	367	255	385
D.U.I				
Engaged	69	105	75	91
Valid N	240	366	256	385
Total N	268	388	268	388

CHAPTER 7

Overview of Results

The following results correspond with this study's three research questions. First, which latent antisocial behavior statuses manifest within six discrete time points between early adolescence and young adulthood? Second, how does membership status changes over time? Finally, how do specialization patterns relate to desistance?

To answer these questions, latent status solutions extracted from LTAs divided into two, age-based analyses were examined. Because studies suggest that the antisocial behavior patterns of adolescents may be qualitatively different than that of adults (Bursik, 1980; Francis, Soothill, & Fligelstone, 2004; LeBlanc & Frechette, 1989; Piquero, Farrington, & Blumstein, 2003; Piquero et al., 1999; Rojek & Erickson, 1982; Stattin, Magnusson, & Reichel, 1989; Wolfgang, Thornberry, & Figlio, 1987), the analysis was divided into two large sections: early through late adolescence & late adolescence through young adulthood.

First, LTAs were conducted for waves 1-4, which correspond to early and late adolescent time periods, ages 10-18. Once a best fitting model was determined for this time period, LTAs were conducted for waves 4-6. The statuses for wave 4 were held constant for the second LTA analyses, as the best fitting wave 4 solution had already been determined in the wave 1-4 LTA. The waves 4-6 LTAs correspond to the young adult years 18-24. For each set of LTAs, model identification was assessed by using multiple starting values which better assures that the model solutions and fit statistics with the maximum likelihood value is replicated (Lanza et al., 2010). These starting values varied from 5000 to 10000.

Starting with the LTAs for waves 1-4, I first tested the baseline model which corresponds to the GTC and the AGSC's hypotheses concerning behavior specialization. The GTC and the AGTSC argue that no specialization patterns should emerge (Gottfredson & Hirschi, 1990; Sampson & Laub, 1993). For this hypothesis to be supported, the best fitting LTA model for waves 1-4 would be a W1(2)-W2(2)-

W3(2)-W4(2) solution. In other words, only two statuses would emerge by each wave, suggesting that individuals can be characterized by antisocial engagement and non-engagement.

Complexity to the LTA models which correspond with the developmental hypotheses of the DTT and the CCP was then added. For example, both the DTT and CCP suggest that specialization may occur and that increases in specialization may be related to age and/or experience in antisocial involvement (Francis, Soothill, & Fligelstone; 2004; Moffitt, 1993; Piquero, Farrington, & Blumstein 2003). Thus, one would expect the best fitting model to reflect early non-specialization, but as the respondents age, greater specialization patterns would emerge. Starting with the baseline model of W1(2)-W2(2)-W3(2)-W4(2), I then compared the fit statistics of the following models in which potential specialization emerged over time : W1(2)-W2(2)-W3(2)-W4(3), W1(2)-W2(2)-W3(3)-W4(3), W1(2)-W2(3)-W3(3)-W4(3), and W1(3)-W2(3)-W3(3)-W4(3).[9] Each of these LTA models were conducted, and then the fit statistics were considered and compared for each. When the best fitting model for waves 1-4 was determined, the process was repeated for waves 1-6 while holding the wave 4 status solution constant. Again, theoretical assumptions guided the models tested. The DTT suggests that specialization may decrease in young adulthood as the adolescent limited offenders begin to age-out of antisocial behavior (Moffitt, 1993). On the other hand, the CCP argues that greater specialization may occur as individuals learn specialized skills and behavior patterns that reap the most reward (Francis, Soothill, and Fligelstone 2004; Piquero, Farrington, and Blumstein 2003).

[9] Specialization patterns that were not directly related to these theoretical predictions were also tested, but no improvement of fit was revealed. Furthermore, because of the importance of substantive meaning and parsimony in LCA and LTA models selection over the suggestions of the fit statistics (Kline, 2004; McCutcheon, 2002, Muthén & Muthén, 2000; Rafferty, 1995), the models that most clearly aligned with theoretical predictions and were supported by the data are the only ones discussed.

CHAPTER 8

Antisocial Specialization within Discrete Time Points: Results & Discussion

Result Specific to research Question #1

To address the first research question, two aspects of the LTA results were considered. First, the fit statistics for each LTA model were considered to determine the best fitting models. Second, the item-response probabilities for each status solution at each time point were examined to establish the qualitative meaning of the latent statuses.

See tables 4-5 for the fit statistics of the LTA models for waves 1-4 (ages 10-18) and waves 4-6 (ages 18-24). The Bayesian Information Criterion (BIC), the adjusted BIC, and the Akaike Information Criterion (AIC) measure the model fit of a LTA (Everitt, Landau, & Morven, 2001; Nylund, Asparouhov, & Muthén, 2007; Muthén & Muthén, 2002). The lowest BIC, adjusted BIC, and AIC scores indicate the best model fit. Entropy scores should also be considered in order to assess whether the class groups were clearly delineated from each other. Typically, scores approaching 1 are considered indicative of separate classes, and a score higher than .70 signifies good classification accuracy (Celeux & Soromenho, 1996; Reinecke, 2006). All of the entropy scores in this analysis meet that threshold.

Choosing which model is the best fitting should be a combination of considering which model has the smallest fit measures and the substantive meaning of the class distinctions. However, substantive meaning and parsimony should drive model selection over the suggestions of the fit statistics (Kline, 2004; McCutcheon, 2002, Muthén & Muthén, 2000; Rafterty, 1995).

For the LTAs conducted for waves 1-4, the W1(2); W2(3); W3(3); W4(3) status solution is the best fitting model (See table 4). Its AIC (18506.70) and adjusted BIC (18641.80) are lower than the other models' fit statistics, and its entropy score is acceptable at .70.[10] This model also satisfies the LTA

[10] It should be noted that the final model tested for the waves 1-4 LTAs, W1(3); W2(3); W3(3); W4(3), did not produduce dependable results. The model attempted to extract too many classes for the data to produce replicable

model's need for substantive meaning as it is closely aligned with arguments made both by the DTT and the CCP. Because a 3 status solution is best for wave 4, the LTAs for waves 4-6 held this solution for wave 4 constant.

For the wave 4-6 LTA models (see table 5), the W4(3); W5(4); W6(4) status solution was the best fitting model. This model's AIC (12754.10) and adjusted BIC (12883.90) are the smallest of the models; its entropy score is very acceptable at .84, and the CCP literature predicts diversity of specialization groups overtime.

Turning now to the subjective meaning of each status. Tables 6-11 show the item-response probabilties by each wave. For wave 1 (please see table 6) the 2 status solution's item response probabilties indicate that one status (N 113) has a higher probabiltiy on all wave 1 antisocial behavior tendencies than the other status (N 543). Because of the first status' higher probaitlties on all tendencies, those who are charcterized within this status are termed the wave 1 engagers. The others are the wave 1 abstainers. The wave 1 engagers have a higher mean score on aggressive orientation (.441) and are more likely to report engaging in home and school related antisocial behavior (.458), acts against property (.283), psychological deviance (.787), lying (.225), violence (.459), and substance use (.101). However, while the wave 1 engagers are more likely than the wave 1 abstainers to engage in all of these behaviores, their substance abuse probability score is still rather low at just .101. Substance use bahviors at this time period (ages 10-11) are rare, even for those engaging in other kinds of activities.

Table 7 displays the item-response probability scores for wave 2 (ages 12-13). At this time point, 3 statuses are evident. One status is clearly lower than the other two on all antiscoial behavior indicators. These wave 2 abstainers (N 439) also have a lower mean agression score (-.197). The wave 2 mild delinquents (N 176) have low probabilities of engaging in acts against property (.083), lying (.147), violence (.219), and substance use (.133), but they score relatively high on both problems at home and/or school (.644) and psychological antisocial behavior (.597) with probabilities around .60. I term those

---

results, and the fit statistics are not displayed because of this. This is also the case for the W4-W6 LTAs that include statues exceeding 4.

within this status the wave 2 mild delinquents because they do engage in some of the more mild behaviors that the wave 2 abstainers avoid, but they are still unlikely to act in serious antisocial ways, including violence and acts against property. Finaly, another status is unique in its higher proability scores on all indicators, including the highest mean score of aggression (.535). Because this status contains the respondents who are the most likely to not only engage in the mild delinquency types of behvaiors but also violence, acts against property, and substance use, this status is titled the wave 2 versatile actors (N 41).

Wave 3 (ages 14-15) has a simmilar status pattern to wave 2. See table 8 for item response probabilties for wave 3. Again, an abstainers (N 379) status is apparent which contains respondents who are the lowest on all item probabilties. A mild delinquents (N 172) status is also perceptible. These individuals have low probabilties on the more serious antisocial tendencies of violence (.057) and acts against property (.102) but have a high probabiltiy of problems at home and school (.60), and moderate probabilties of psychological antisocial behavior (.355) and substance use (.392). Finally, wave 3 verstile actors (N 105) do score the highest of the other wave 3 status members on all tendencies, inlcuding violence (.298). However, the wave 3 versatile actors have lower probabilties of violence than the wave 2 versatile actors. Also, the mean scores of aggressive orientation are less differentiated between the three statuses at wave 3. In fact, the wave 3 abstainers have the highest A.O. mean (.123) and the wave 3 versatile group has the lowest mean (-.522). This may indicate that violent behaviors and aggressive attitudes may be less prevalent at this time period.

See table 9 for the item response probabilities for wave 4 (ages 17-18). At wave 4, some new indicators concerning dating and sexual behaviors were included and the psychological deviance indicator was removed. At wave 4, three statuses are clear. W4 versatile actors (N 68) score the highest on all indicators. Those within this status also have the highest mean score on A.O. The W4 Abstainers (N 379), have the lowest A.O. mean (-.018) and also have the lowest probabilties of engaging in all other antisocial behaviors. This status, along with the other two statuses in this time period do have a high probabilty of engaging in romantic partner emotional abuse (.783), though this is a lower probability

score than the other two groups. W4 Partiers (N 209) belong to the status that scores low on all behaviors except substance use (.694), romantic partner emotional abuse (.854), and risky sexual activity (.756). I term this status the partiers because the behaviors associated with the greatest probabilties are those associated with thrill seeking but not nessasarily violence or acts against property.

See table 10 for the item response probabilities for wave 5 (ages 20-21). This wave no longer has any variables that would be suitable for an adolescent sample, including problems at home and school. This time period also includes measures for making money illegally and driving under the influence. At this wave, a 4 status solution is evident. An abstiaining status (N 210) with members who are less likely to engager in all behaviors is clear. While the violence indicator for waves 3 and 4 did not score a probability higher than .30, at wave 5, the status which scores the highest on all indicators, also scores very highly on violence with a probability of .776. The wave 5 versatile actors (N 74) also have a high mean of A.O. (.722) compared to the other statuses within this time period. Wave 5 intense partiers (N 189) is a status with members who have a low mean of A.O. (-.010), a low proability of violence (.174), acts against property (.156), romatic partner phsyical abuse (.045), and making money illegally (.138). However, individuals within this status also have a very high liklihood of engaging in substance abuse (.915), risky sex (.896), romantic partner emotional abuse (.678), and driving under the influence (.508). This group contrasts with a the wave 5 mild partiers (N 183) who have low probabilty scores on most indicators, but moderate indicators of substance use (.312) and risky sex (.563). Interestingly, this group also differs from the intense partier status with a higher mean score of A.O. (.569) and a greater liklihood of engaging in violence (.239) and romantic partner physical abuse (.221). Members of this status seem more likely to engage in party-like behaviors than those within the abstainers status but less likely than the intense partier group. However, this group does seem to have some mild aggressive tendencies that also separate them from the abstaining group or the intense partying group.

Finally, the wave 6 (ages 22/24), item response probabilties (see table 11) compare favorably to the wave 5 results. An abstiners status (N 223) is evident with lower scores on all indicators. A versatile status (N 84) is also clear. This status has the highest probabilties on all indicators, including violence

(.661). Compared to wave 5, romantic partner physical abuse seems less likely at wave 6. No probabilties exceed .20 for any status, including the most violent one. The intense parters status (N169) is also evident with individuals who score low on most indicators but high on substance use (.956), driving under the influence (.467), romantic partner emotional abuse (.873), and risky sexual behavior (.933). However, the wave 6 mild partiers (N 180), while scoring moderatly high on the party related variables as the wave 5 mild partiers do, no longer have moderate aggression related scores. Individuals within this status seem to only engage in party behaviors including subastance use (.311) and risky sexual behavior (.630), but not to the certianity of the intense party group.

Discussion Specific to Research Question #1

The item-response probabilities for each time point have specific implications for theoretical predictions concerning antisocial behavior specialization. First of all, the AGTISC and the GTC both do not anticipate themes of offending to manifest. According to these theories, only two statuses should arise across time points: those that engage in antisocial behavior and those that do not. However, the results show a much more nuanced pattern of antisocial behavior specialization which suggests the importance of life stage in determining status membership. I find a two status solution for wave 1 (age 10/11), a three status solution for waves 2 (age 12/13) – 4 (age 17/18), and a 4 status solution for waves 5 (age 20/21) and 6 (age 22/24).

This pattern aligns with many of the predictions of both the CCP and DTT. First of all, the CCP suggests that antisocial behavior groups will manifest which reflect higher probabilities of property offenses, drug offenses, and versatile behaviors (Blumstein et al., 1986). Also, the CCP argues that the versatile behavior group will be associated with a higher probability of violence. I do find a consistent versatile behavior group across time points which is more likely to engage in all antisocial behaviors, including violent behaviors. Statues that are typified by party behaviors, including drug use, are also present in later time periods. However, a category specializing in property crimes is not apparent.

The DTT also is partially supported, particularly in the earlier time points. Moffitt (1993) argues that 3 statuses of individuals will manifest in adolescence: those who engage in versatile and violent

antisocial acts, those who specialize in mild delinquency and nonviolent acts, and those who do not engage in antisocial behavior. This occurs as adolescent limited offenders enter into antisocial behavior engagement by specializing in mild, nonviolent delinquency. Also, as the adolescent limited offenders age out of crime, the number of specialized statuses would be expected to reduce. This would transpire as the adult persistent offenders, or those that engage in versatile and violent behaviors, continue in their behavioral tendencies but the mild delinquents return to non-engagement (Moffitt, 1993).

Waves 1-4 (ages 10-18) reflect this kind of anticipated pattern. At very early adolescence (age 10/11), only two status manifest: engagers and abstainers. By age 12/13, three statuses are apparent: a versatile status which has similar item probabilities to the engager status at the previous time point, a mild delinquency status specializing in home/school problem behaviors and psychological antisocial behaviors, and an abstaining group. This three class solution is maintained through age 18. However, instead of this being reduced to a two status solution in young adulthood as the adolescent-limited offenders age out of negative behaviors as Moffitt (1993) would predict, the opportunities for specialization expand to a 4 status model. Waves 5 and 6 (ages 20-24) have specialization statuses that reflect versatile, mild party, intense party, and abstaining behaviors. Furthermore, the abstaining category does not increase in size over time as would be expected if large numbers of adolescent-limited offenders were ageing out of crime. On the contrary, the abstaining status becomes smaller over time, reducing by 59% between wave 1 (age 10/11) and wave 6 (age 22/24).

The DTT also anticipate gender differences in status membership. According to Moffitt 1993; 1994), men will be more likely to be members of the adult-persistent group or the versatile statuses and gender gaps in antisocial behavior will be smallest in adolescence. In order to assess these predictions post-hoc crosstabulations were conducted. Please see tables 12-13 for significant gender crosstabulations. No significant gender differences in group membership are evident for ages 10-18, which is consistent with the DTT predictions concerning a lessened gender gap during this period (Ibid). However, there is no evidence that boys are more likely to be members of the versatile group during these periods either.

Gender differences do become apparent at later life stages. For wave 5 (age 20/21), a higher percentage of men are members of each engaging category, including the versatile status (Chi square=8.501; 3df; p=.037). 13% of the men at wave 5 are members of the versatile group while only 10% of the women are. Furthermore, a higher percentage of women are abstainers than men at wave 5 with 36% of women belonging to the abstaining status and 26% of the men belonging to this category. A similar story is found for wave 6 (age 22/24) (Chi square=10.061; 3df; p=.018). 16% of men belong to the versatile status while 11% of the women do, and 37% of women, compared to 28% of the men, are in the abstaining status at wave 6. The greater likelihood for male membership in the versatile statuses is in line with both Moffitt's predictions, and other researchers' conclusions that men may have a greater tendency to engage in violent behavior (Blumstein et al., 1986; Hindelang, 1971; Johnson et al., 1995; Smith & Visher, 1980; Steffensmeier, 1993; Steffensmeier & Allan, 1996).

All in all, antisocial behavior specialization is evident and dynamic. Because status size fluctuates and greater opportunities for specialization manifest over time, static specialization is unlikely, which is a finding that corresponds well with recent conclusions about specialization (e.g. DeLisi, 2005; Francis, Soothill, & Fligelstone, 2004; McGloin, Sullivan, & Piquero, 2009). However, and as others have suggested (McGloin et al.,, 2007; Shover, 1996; Steffensmeier & Ulmer, 2005; Sullivan, McGloin, Pratt, & Piquero, 2006), by disaggregating the data and examining shorter time periods within a longer time span, evidence for short term specialization is apparent. Furthermore, like Trojan and Salfati's (2010) examination of homicide offenders, the thematic approach adopted here has revealed behavior groups that correspond with specific propensities for behavior.

In these results, behavior specialization is clearly linked with life stage and, perhaps, developmental progression as more opportunities for specialization develop over time. In the following sections, the longitudinal aspect of this analysis is discussed in order to better understand how individuals move between antisocial groups as they age.

Tables Relevant to Research Question #1

Table 4: LTA Fit Statistics: Wave 1 (age 10/11) to Wave 4 (age 17/18)

	GTC & AGTSC: W1(2); W2(2); W3(2); W4(2)	CCP & DTT: W1(2); W2(2); W3(2); W4(3)	CCP & DTT: W1(2); W2(2); W3(3); W4(3)	CCP & DTT: W1(2); W2(3); W3(3); W4(3)
AIC	18590.80	18578.50	18538.20	18506.70
BIC	18900.30	18941.90	18950.90	18.968.80
Adj. BIC	18681.20	18684.70	18658.80	18641.80
Entropy	.73	.71	.70	.70

Table 5: LTA Fit Statistics: Wave 4 (age 17/18) to Wave 6 (age 22/24)

	DTT: W4(3); W5(3); W6(2)	DTT: W4(3); W5(2); W6(2)	CCP: W4(3); W5(3); W6(3)	CCP: W4(3); W5(3); W6(4)	CCP: W4(3); W5(4); W6(4)
AIC	13005.50	13058.60	12878.50	12854.10	12754.10
BIC	13270.20	13260.50	13197.00	13231.00	13198.20
Adj. BIC	13082.80	13117.60	12971.60	12964.30	12883.90
Entropy	.85	.87	.83	.84	.84

Table 6: Class Solutions for Wave 1: Age 10/11

	W1 Engagers	W1 Abstainers
Mean(Variance)		
A.O.	.441(.664)	-.094(1.044)
Probability Scores		
Problems at Home and/or School	.458	.086
Acts against Property	.283	.000
Psychological Antisocial Behavior	.787	.169
Lying	.225	.005
Violence	.459	.020
Substance Use	.101	.011
N	113	543

Table 7: Class Solutions for Wave 2: Age 12/13

	W2 Mild Delinquents	W2 Versatile Actors	W2 Abstainers
Mean(Variance)			
A.O.	.32(.664)	.535(1.04)	-.197(1.14)
Probability Scores			
Problems at Home and/or School	.644	.862	.225
Acts against Property	.083	.781	.011
Psychological Antisocial Behavior	.597	1.00	.155
Lying	.147	.712	.020
Violence	.219	.561	.000
Substance Use	.133	.434	.012
N	176	41	439

Table 8: Class Solutions for Wave 3: Age 14/15

	W3 Mild Delinquents	W3 Versatile Actors	W3 Abstainers
Mean(Variance)			
A.O.	.013(.664)	-.522(1.138)	.123(1.044)
Probability Scores			
Problems at Home and/or School	.604	.915	.308
Acts against Property	.102	.408	.016
Psychological Antisocial Behavior	.355	.796	.131
Lying	.024	.511	.032
Violence	.057	.298	.004
Substance Use	.392	.637	.040
N	172	105	379

Table 9: Class Solutions for Wave 4: Age 17/18

	W4 Partier	W4 Versatile Actors	W4 Abstainers
Mean(Variance)			
A.O.	.067(.664)	.55(1.138)	-.018(1.044)
Probability Scores			
Problems at Home and/or School	.233	.491	.167
Acts against Property	.048	.349	.000
Lying	.014	.450	.035
Violence	.022	.152	.005
Substance Use	.694	.859	.131
RP Emotional Abuse	.854	.999	.783
RP Physical Abuse	.161	.504	.071
Risky Sexual Behavior	.756	.764	.211
N	209	68	379

Table 10: Class Solutions for Wave 5: Age 20/21

	W5 Mild Partiers	W5 Intense Partiers	W5 Versatile Actors	W5 Abstainers
Mean(Variance)				
A.O.	.587(.723)	-.010(.527)	.722(1.077)	-.764(.589)
Probability Scores				
Acts against Property	.120	.156	.604	.048
Violence	.239	.174	.776	.061
Substance Use	.312	.915	.923	.185
RP Emotional Abuse	.736	.678	.841	.374
RP Physical Abuse	.221	.045	.363	.020
Risky Sexual Behavior	.563	.896	.920	.480
D.U.I	.032	.508	.893	.093
Making Money Illegally	.060	.138	.660	.000
N	183	189	74	210

Table 11: Class Solutions for Wave 6: Age 22/24

	W6 Mild Partiers	W6 Intense Partiers	W6 Versatile Actors	W6 Abstainers
Mean(Variance)				
A.O.	.569(.527)	-.040(.589)	.677(1.077)	-.712(.723)
Probability Scores				
Acts against Property	.077	.059	.489	.027
Violence	.133	.105	.661	.016
Substance Use	.311	.956	.953	.209
RP Emotional Abuse	.802	.873	.791	.507
RP Physical Abuse	.132	.114	.079	.000
Risky Sexual Behavior	.630	.933	.915	.507
D.U.I	.026	.467	.702	.115
Making Money Illegally	.047	.055	.606	.005
N	180	169	84	223

Table 12: Crosstabulation for Class Membership at Wave 5 (age 20/21) by Gender

Gender	W5 Mild Partiers	W5 Intense Partiers	W5 Versatile Actors	W5 Abstainers	Totals
Men	76 29%	86 32%	36 13%	70 26%	268 100%
Women	107 27%	103 27%	38 10%	140 36%	388 100%
Totals	183 28%	189 29%	74 11%	210 32%	656 100%

Chi square=8.501; 3df; p=.037

Table 13: Crosstabulation for Class Membership at Wave 6 (age 22/24) by Gender

Gender	W6 Mild Partiers	W6 Intense Partiers	W6 Versatile Actors	W6 Abstainers	Totals
Men	71 27%	78 29%	43 16%	78 28%	268 100%
Women	109 29%	91 23%	41 11%	91 37%	388 100%
Totals	180 27%	169 26%	84 13%	169 34%	656 100%

Chi square=10.061; 3df; p=.018

CHAPTER 9

Patterns of Antisocial Specialization Change over Time: Results & Discussion

Results Specific to Research Question #2

The following research question concerns how membership in antisocial behavior groups change over time. Please, see tables 14-18 for the transition probabilities between each behavior status at each transition point. Table 14 shows the transition probabilities between the wave 1 (ages 10-11) and the wave 2 (ages 12-13) time points. Wave 1 engagers have the highest probability (.512) of becoming wave 2 mild delinquents. Wave 1 engagers have similar probabilities of becoming wave 2 versatile actors (.247) or wave 2 abstainers (.242). Wave 1 abstainers are the most likely to remain abstainers at wave 2 (.712), are the least likely to become wave 2 versatile actors (.032), and have a moderate possibility of becoming wave 2 mild delinquents (.256).

See table 15 for the transition point between wave 2 (ages 12-13) and wave 3 (ages 14-15). At this transition period, wave 2 abstainers, like wave 1 abstainers, have the highest probability of remaining abstainers at wave 3 (.772), a moderate probability of becoming wave 3 mild delinquents (.219), and a very low probability of transitioning to the wave 3 versatile actors status (.009). The wave 2 mild delinquents are almost equally likely to become wave 3 versatile actors (.397) or wave 3 mild delinquents (.376), and they are a little less likely to become wave 3 abstainers (.227). Movement for wave 2 mild delinquents seems variable with no one group at wave 3 the most likely destination. For wave 2 versatile actors, they are clearly the most likely to remain versatile at wave 3 (.601) and the least likely to become abstainers at wave 3 (.031). They have a moderate possibility of becoming wave 3 mild delinquents (.368).

Table 16 shows the transition probabilities for wave 3 (ages 14-15) to wave 4 (ages 17-18). Again, wave 3 abstainers are the most likely to remain abstainers at wave 4 (.883). The probability for becoming wave 4 versatile actors or partiers is much lower for this group. The probability of becoming

versatile at wave 4 is zero, and the probability of becoming a wave 4 partier is also very low at .117. While at the wave 2 (age 12/13) to wave 3 (age 14/15) transition the wave 2 mild delinquents were the most variable group with very similar probabilities of movement to each of the wave 3's statuses, at the wave 3 (age 14/15) to wave 4 (age 17/18) transition, the wave 3 versatile actors are the most variable group. This status has very similar probabilities of become wave 4 versatile actors (.385) or partiers (.399) and a moderate probability of becoming abstainers (.216). The wave 3 mild delinquents are the most likely to become wave 4 partiers (.729), a moderate probability of become wave 4 versatile actors (.228), and a very low probability of becoming abstainers (.043).

See table 17 for the probabilities for the next transition point, wave 4 (ages 17-18) to wave 5 (ages 20-21). This transition point differs the most from the others in that this is the only point where the previous waves' abstainers are not clearly remaining abstainers in the following wave. Where the other transition probabilities for continuing abstinence is above .70, at the wave 4 to wave 5 transition it drops to .446, which is about a 36% decrease in the likelihood of continued abstinence. Instead of the majority of wave 4 abstainers remaining abstainers at wave 5, they have a moderate probability of become wave 5 mild partiers/aggressive (.299), a low probability of becoming wave 5 intense partiers (.189), and a very low probability of becoming wave 5 versatile actors (.065). Both the wave 4 partiers and versatile actors are variable in their transitions. Wave 4 partiers are the most likely to escalate to the wave 5 intense partiers (.437) and moderately likely to become wave 5 mild partiers (.236). They have low probabilities of becoming wave 5 abstainers (.177) or wave 5 versatile actors (.150). Wave 4 versatile actors have nearly equal probabilities of becoming wave 5 mild partiers (.315), intense partiers (.346), and wave 5 versatile actors (.288). However, they have a low probability of becoming wave 5 abstainers (.052).

For the final transition period, wave 5 (ages 20-21) to wave 6 (ages 24-25), see table 18. Once again, the wave 5 abstainers are the most likely to remain wave 6 abstainers (.907). They have absolutely no likelihood of becoming wave 6 mild partiers (.000) or versatile actors (.000), but they do have a slight chance of becoming wave 6 intense partiers (.093). In fact, continuity in behavior is high for all the transitions at this period. Wave 5 mild partiers are the most likely to remain mild partiers at wave 6

(.899) with low probabilities of becoming wave 6 intense partiers (.017), versatile actors (.070), or abstainers (.014). Wave 5 intense partiers are the most likely to remain that way at wave 6 (.769) with low probabilities of becoming wave 6 mild partiers (.064), versatile actors (.047), or abstainers (.064). Finally, wave 5 versatile actors have the highest probability of remaining versatile at wave 6 (.881) with low probabilities of become abstainers (.056), mild partiers (.050), or intense partiers (.013).

Discussion Specific to Research Question #2

The transition probabilities between time points reveal overarching themes of movement over time as well as key deviations from these themes which have specific implications for the theoretical predications of the CCP, DTT, and AGTISC. The CCP argues that adolescent membership in any offending status will be associated with greater specialization and seriousness over time (Blumstein et al., 1986; Le Blanc & Frechette, 1989; Yonai et al., 2010). Similarly, the DTT posits that early entry into an offending status will be associated with continued membership in offending statuses over time and will increase the likelihood of being in a versatile group (Moffitt, 1993). The DTT is the only theory that makes predictions about gender differences, and it argues that men will be more likely to be members in early, persistent, and versatile statuses over time (Ibid). Finally, the AGTISC hypothesizes that emerging adulthood will be associated with increases in desistance (Sampson & Laub, 1993).

To assist in this discussion please see table 19 for average probabilities of desistance, de-escalation, escalation, and continuity at each time period. In this discussion, desistance refers to the movement to an engaging status to an abstaining one. De-escalation is the movement from a more to less serious status such as the movement from a versatile status to a mild party or intense party status. Escalation denotes the reverse where individuals move from a less serious status to a more serious one. Finally, continuity refers to the maintenance of a like category[11]. The average probabilities for each wave

[11] For most transitions where corresponding titles are used, these movements are self-explanatory. For instance, abstainers moving to any wave's abstainers' status indicate continuity. However, for transitions with varying status classifications, some guidance is needed. For the wave 1 to wave 2 transition, wave 1 engagers are the most like the wave 2 versatile actors because their item response probabilities reflect the same tendency for versatility. Thus, when wave 1 engagers become wave 2 versatile actors, this is considered behavior continuity while movement to the wave 2 mild delinquent status is considered de-escalation. For the wave 3 to 4 transition, the transition from wave 3

were calculated by adding the cell counts of each relevant transition status and dividing by the sample's total N (656).[12]

Continuity in behavior is the over-arching pattern across time points. For each time point, except the wave 4 (ages 17/18) to wave 5 (ages 20/21) transition, the probability of continuity exceeds .65. This is contrast to the CCP predictions concerning membership in offending cluster being associated with greater specialization and seriousness over time (Blumstein et al., 1986). Rather than escalation in behavior being normative, continuity in behavior is the dominate trend. The clear majority of individuals remain in like statuses over time.

Another clear trend, is the high probability of abstainers in each time point to remain abstainers at the subsequent time point. Excluding the wave 4 (ages 17/18) to wave 5 (ages 20/21) transition, the probability of this always exceeds .70. Correspondingly, transition probabilities for all engaging statuses to an abstaining category is always lower than .25. This indicates that members of engaging statues are more likely to remain constant or transition to another engaging status than transition to abstinence. This pattern reflects the predictions of the GTC, which argue that offending will be associated with continued offending (Gottfredson & Hirschi, 1990). The reduced likelihood of members of engaging statues to move to abstaining ones shows that desistance is relatively low and stable across time points with average probabilities between .03 and .06 (see table 19). Furthermore, de-escalation is also low and largely stable across time with average probabilities between .01 and .15.

Escalation patterns demonstrate more variability. Between the ages of 10 and 15, escalation is moderate at .20 to .25. This indicates that about a quarter of the movement during these adolescent years is typified by increases in seriousness. This pattern of escalation is largely driven by a moderate probability (.256) of early abstainers at age 10/11 moving to the mild delinquency group at the next time

---

mild delinquents to wave 4 partiers is considered continuity because while the probability for substance use increases at wave 4, other items such as problems and home and school and acts against property decrease. Finally, for the transition between wave 4 and wave 5, wave 4 partiers do not have a direct continuity equivalent at wave 5. Movement from the wave 4 party status to the wave 5 mild party status represents de-escalation in substance use which is the status' key behavior while a movement to the wave 5 intense party status represents escalation in behavior.

[12] See the Appendix for the cell counts by transition group.

period, age 12/13 (see table 14). This movement represents 18% of the total sample (see the cell counts of these transitions in the appendix). Also, at the wave 2 (age 12/13) to wave 3 (age 14/15) transition, movement from the abstaining status to the mild delinquency status has a moderate probability of .219 (see table 15). While mild delinquents aged 12/13 are also escalating to the versatile status at age 14/15 (probability .397), the majority of escalation across these two time points is due to the abstainers' transitions.

The increase in escalation during these time periods is in line with findings concerning the commonplace nature of antisocial behavior during adolescence. Some have found that antisocial behavior becomes quite normal, even as high as 90% during this period (Caspi et al., 1993). Also, adolescence is when the age crime curve reaches its peak (Hirschi & Gottfredson, 1983), suggesting that previously abstaining individuals are transitioning into antisocial behavior. Furthermore, Moffitt (1993) argues that entry into mild delinquency around these time periods correspond with adolescent-limited offenders or later starters beginning to offend in mild and specialized patterns.

However, between the ages of 14 and 18, escalation drops to .07 and is also low at the last transition, between ages 21 and 25, at .04. At the wave 4 (ages 17/18) to wave 5 (ages 20/21) transition, the probability of escalation increases to .50 with half of the respondents demonstrating escalation in their behavior. Not surprisingly, the wave 4 to wave 5 transition also marks the period of lowest continuity in behavior with a probability of .29. The prevalence of escalation during this period and continuity in the following time period (age 22/24) is in contrast to the predictions of the AGTISC, which argues that emerging adulthood will be characterized by desistance as young people make transitions that are associated with greater adult responsibilities and more pro-social networks (Sampson & Laub, 1993). The results indicate that rather than turning away from adolescent antisocial behavior, many are experimenting and exploring antisocial behavior that is typified by party behaviors.

Table 17 displays the probability transitions for this period, and two patterns are contributing to the escalation during this period. First, wave 4 abstainers are not the most likely to remain abstainers as is normative for abstainers in the other transition points. Between the ages of 17 and 21, many abstainers

are moving to each of the wave 5 party groups. Wave 4 abstainers have a .299 probability of becoming wave 5 mild partiers and a probability of .189 of becoming intense partiers. Their probability of becoming versatile actors is much lower at .065. Also, the wave 4 partiers are escalating at this point as they have the highest probability (.437) of moving to the intense party group. Thus, movement of the wave 4 abstainers to the wave 5 mild party status and the movement of the wave 4 partiers to the wave 5 intense party status are driving the escalation trend for this period.

The wave 4 to wave 5 transition is also unique because of an increase in the probability of de-escalation during this time. While the next transition period (ages 20/21-22/24) has an average de-escalation probability of .01, the wave 4 to wave 5 transition has an average probability of de-escalation of .15, which is the highest of any other transition time. While this period is clearly most characterized by escalation, it also has the highest probability of de-escalation. This is largely the case because of the movement of many wave 4 versatile actors to wave 5 party groups (see table 17). Wave 4 versatile actors have a probability of .346 of becoming wave 5 intense partiers and a probability of .315 for becoming wave 5 mild partiers.

Theorists in life course criminology, such as Sampson and Laub (1993), and emerging adult theorists such as Arnett (2000) predict that the period encapsulating individuals' late teens and early twenties is especially meaningful. Sampson and Laub (1993), argue that this period may provide turning points for desistance in the forms of full time employment, marriage, and/or military service. Massgolia and Uggen (2010) argue that desistance during this period is incredibly influential on adult-life opportunities. Those who fail to desist from adolescent antisocial behavior may find adult pathways of gainful employment, higher education, and/or pro-social romantic partners blocked.

On the other hand, this period of emerging adulthood is also likely a time of experimentation and exploration. Arnett (2000) argues that during emerging adulthood, young people are exploring possible adult selves, and this exploration can lead to deviant paths. Consistent with this argument, Fagan and Western (2005) find that the mean level of offending reaches its peak in emerging adulthood for certain crimes such as drug and vehicular offenses.

The results correspond well with this finding as many abstainers at age 17/18 move to party oriented statuses at age 20/21. These statuses are characterized by heavy drinking, marijuana use, driving under the influence, and risky sexual activity. Furthermore, those who were in a milder party category at age 17/18 move to a group that is more intensely party oriented at age 20/21. During this period, many may be moving out of their families' homes for the first time, entering college, or pursuing fulltime employment which greatly reduces the amount of supervision they experience. This period also marks the transition to the legal drinking age (21), which likely increases alcohol's accessibility. Transitions to more party oriented statuses may also be linked to changes in network, which could introduce new deviant pastimes. For example, individual substance use has been consistently linked to the substance use of one's peers (Latkin et al., 1995; Best et al., 2005; Kandel et al., 1978; Latkin et al., 1999)

While the escalation to party statuses clearly marks the transition period between 17/18 and 20/21, de-escalation of behavior is also apparent if less likely. The group that is most likely to de-escalate is the wave 4 versatile actors as they move to the wave 5 party groups. This corresponds well with predictions of displacement (Massgolia, 2006) as well as Gottfredson and Hirschi's (1990) predictions of individuals switching to behaviors analogous to crime rather than desisting.

It is not evident that the movement of the wave 4 versatile actors to the wave 5 party groups is indicative of the CCP's predictions that movements to less serious and more specialized forms of behavior lead to desistance (Le Blanc & Loeber, 1998). If this were the case, one would expect to see an increase in desistance at the following transition period between wave 5 (ages 20/21) and wave 6 (ages 22/24). However, this is not evident. The transition period between ages 20/21 and 22/24 is the most stable with the highest probability of continuity in behavior and one of the lowest probabilities of desisting (.04). Thus, not only is there a great deal of status switching occurring in the transition between ages 17/18 and 20/21, these modifications in behavior seem to become stable over time. The lasting nature of these changes makes this period potentially influential for adult behaviors, relationships, and opportunities (Massgolia & Uggen, 2010).

Another way to address movement between status groups over time is the influence of age of onset on membership in the most versatile and violent groups. Moffitt (1993) argues that those who are earlier engagers will be the most likely to be life course persistent offenders. These individuals are likely to be versatile in their behaviors and have a tendency towards violence that is in contrast to the adolescent limited offenders who are likely to specialize in mild forms of delinquency. Thus, one would expect for wave 1 engagers to be more likely to be represented to the versatile groups over time than the wave 1 abstainers.

Table 20 shows the crosstabulations between wave 1 (ages 10/11) status membership and each subsequent time point. All crosstabulations are significant at the .000 level and show that at each time point a higher percentage of wave 1 engagers are present in the versatile violent status groups than wave 1 abstainers. On average, 24% of the wave 1 engagers are versatile actors at all subsequent time points while only about 9% of the wave 1 abstainers are in this category across time. Thus, the DTT predictions concerning early entry into offending statuses and versatile behaviors over time is supported.

In conclusion, continuity in behavior is the dominant trend for the time period between adolescence and young adulthood. Interestingly, while the manifestation of specialization groups does not agree with predictions of the GTC (Gottfredson & Hirschi, 1990), the predominance of stability does suggest a constant and underlying propensity for certain kinds of behaviors not unlike the results suggested by levels of self-control.

Within the continuity of behavior, two distinct periods of escalation are evident. First, movement by early abstainers to mild delinquency statuses occur at the wave 1 (age 10/11) to wave 2 (age 12/13) and wave 2 to wave 3 (age 14/15) transitions. These shifts to minor forms of antisocial behavior in adolescence agree with the DTT predictions concerning late entry into specialized and nonviolent forms of offending. Secondly, patterns of individuals moving to statuses that have higher probabilities for party behaviors at the wave 4 (age 17/18) to wave 5 (age 20/21) transition are evident and suggest a period of emerging adulthood exploration and experimentation (Arnett, 2000; 2004).

In the final research question, these transitions between time periods are further explored in order to assess entire pathways to young adulthood behavior statuses. Specifically, pathways characterized by desistance, escalation, and/or de-escalation.

Tables Relevant to Research Question #2

Table 14: Transition probabilities for the W1 (age 10/11) to W2 (age 12/13) transition

	W2Mild Delinquents	W2 Versatile Actors	W2Abstainers
W1 Engagers	.512	.247	.242
W1 Abstainers	.256	.032	.712

Table 15: Transition probabilities for the W2 (age 12/13) to W3 (age 14/15) transition

	W3 Mild Delinquents	W3 Versatile Actors	W3 Abstainers
W2Mild Delinquents	.376	.397	.227
W2 Versatile Actors	.368	.601	.031
W2Abstainers	.219	.009	.772

Table 16: Transition probabilities for the W3 (age 14/15) to W4 (age 17/18) transition

	W4 Partiers	W4 Versatile Actors	W4 Abstainers
W3 Mild Delinquents	.729	.228	.043
W3 Versatile Actors	.399	.385	.216
W3 Abstainers	.117	.000	.883

Table 17: Transition probabilities for the W4 (age 17/18) to W5 (age 20/21) transition

	W5 Mild Partiers	W5 Intense Partiers	W5 Versatile Actors	W5 Abstainers
W4 Partiers	.236	.437	.150	.177
W4 Versatile Actors	.315	.346	.288	.052
W4 Abstainers	.299	.189	.065	.446

Table 18: Transition probabilities for the W5 (age 20/21) to W6 (age 22/24) transition

	W6 Mild Partiers	W6 Intense Partiers	W6 Versatile Actors	W6 Abstainers
W5 Mild Partiers	.899	.017	.070	.014
W5 Intense Partiers	.064	.769	.047	.064
W5 Versatile Actors	.050	.013	.881	.056
W5 Abstainers	.000	.093	.000	.907

Table 19: Average Probabilities for Major Transition Groups

	Ages 10/11-12/13	Ages 12/13-14/15	Ages 14/15-17/18	Ages 17/18-20/21	Ages 20/21-22/24
Average Probability of Desistance	.05	.04	.03	.06	.04
Average Probability of De-escalation	.09	.02	.07	.15	.01
Average Probability of Escalation	.20	.25	.07	.50	.04
Average Probability of Continuity	.66	.69	.83	.29	.91

Table 20: Crosstabulations of Early Group Membership and Later Violent Group Affiliation

	W2MD	W2V	W2AB	W3MD	W3V	W3AB	W4P	W4V	W4AB	Total
W1 Engagers	57	26	30	40	38	35	57	17	39	113
W1 Abstainers	119	15	409	132	67	344	152	51	340	543
Total	176	41	439	172	105	379	209	68	379	656

	W5MP	W5IP	W5V	W5AB	W6MP	W6IP	W6V	W6AB	Total
W1 Engagers	27	39	24	23	26	30	29	28	113
W1 Abstainers	156	150	50	187	154	139	55	195	543
Total	183	189	74	210	180	169	84	223	656

all chi-square tests are significant at the .000 level

CHAPTER 10

The Association of Antisocial Behavior Patterns and Desistance: Results & Discussion

Results Specific to Research Question #3

The final research question of this study concerns desistance from antisocial behavior and, particularly, which specialization patterns lead to desistance in young adulthood. In order to assess this, I constructed complex pathway variables from the results generated from both LTAs. These variables allow for a careful examination of dominate pathway types, leading to the final wave's behavior statuses.

Any assumption of desistance while individuals are still living is not complete (Farrington, 1979), but the transition probabilities of this analysis (tables 14-18) suggest that continuity in behavior is the predominate trend in the final transition period, age 20/21-22/24. While the primary focus of this final question is desistance, membership in the other behavior statuses at the final wave of data is also a concern. This is particularly the case because of the high level of continuity suggested at the final transition period. Thus, pathways leading to the engaging categories of behavior are also examined along with patterns of desistance.

I constructed these behavior pathways by first dividing the sample by the status possibilities at the fourth and the final wave of data, which corresponds to the ending time periods of each LTA. I then labeled the disparate paths leading to the fourth and final waves' statuses as characterizing paths of continuation, escalation, de-escalation, or a combination of escalation and de-escalation. I considered shifts in behavior as gradual if movement occurred between statuses of adjacent seriousness. For example, a move from a versatile status to a mild delinquency status would be considered gradual de-escalation. However, a change from a versatile status to an abstaining one would be considered abrupt de-escalation.

After these pathways were labeled and dichotomous variables of pathway membership were created, crosstabulations of pathways representing wave 1 – wave 4 transitions and wave 4 – wave 6

transitions identified pathways that bridged the ages from 10/11 to 22/24. In order to simplify the discussion of these results, graphs of the paths that represented at least 5% of the individuals in any of the 4 final statuses are the only ones discussed. All other pathways account for no more than 1% of the entire sample.

For the pathways leading to the abstaining category at the final wave, see graphs 1-17. The majority of abstainers at age 22/24 never were members of any antisocial behavior group (graph 1). 61% of the 223 abstainers at wave 6 were members of this group since wave 1, age 10/11.

The next largest majority of wave 6 abstainers (graph 2) followed a pathway that resembles the predictions made by the DTT. 6.7% of those who had abstained by age 22/24 had only experienced a period of adolescent mild delinquency and partying behaviors that ceased by age 20. None of these individuals were members of a versatile group, and their behaviors were limited to mild ones with very low probabilities of violence. Another group, seen in graph 3, display a similar pattern. 3.6% of the wave 6 abstainers were only members of the mild delinquency group at age 12/13, but had desisted by age 14/15. While this group is not quite 5% of the wave 6 abstainers, they are included in this discussion because they, like the previous group, can be considered adolescent-limited in their behaviors. Thus, about 10.3% of the wave 6 abstainers follow the predicted path of the DTT's adolescent limited offenders.

The last dominate path for those who are abstaining by wave 6 represents about 5.4% of abstainers at age 22/24 (graph 4). These individuals follow a path of early desistance as they were members of the wave 1 engaging category (age 10/11) but abruptly transitioned to the abstaining category by age 12/13. These individuals forwent the mild delinquency and party behaviors of the adolescent-limited like paths, but rather experienced a strong shift in behavior early in adolescence.

Moving now to the engaging categories, graphs 5-7 show the pathways leading to mild party behaviors at age 22/24. The first majority (see graph 5) demonstrates a pathway that is consistent with predictions from the emerging adult literature. 47.2% of the mild partiers at wave 6 had been abstainers between the ages of 10/11 and 17/18 but shifted to mild partying around 20/21. These individuals

demonstrate the experimenting and exploring behaviors that some argue lead to a peak in drug and vehicular offenses during emerging adulthood (Fagan & Western, 2005).

The next group, representing 13.3% of mild partiers at wave 6, escalated to mild delinquency and party statuses at age 12/13 like adolescent limited offenders (graph 6). However, unlike the adolescent-limited offenders, they de-escalated to mild partying at age 20/21 rather than desisting to the abstaining group.

The final majority of wave 6 mild partiers follow a pathway of gradual escalation and de-escalation, in which the mild partying behaviors at wave 6 may be a form of displacement rather than desistance (Massgolia, 2006). Graph 7 shows this path which indicates that 10.5% of these individuals were abstainers at age 10/11, shifted to mild delinquency at ages 12-15, escalated to versatile behaviors at age 17/18, but then de-escalated to mild partier status by age 20/21. Gender differences are also evident in this pathway as this group is nearly 95% female (see table 21 for gender crosstabulations).

For the pathways leading to intense partier status at wave 6, please see graphs 8-11. Graph 8 shows that the majority of intense partiers at wave 6 follow a similar pattern as the majority of mild partiers at this time period. 36.1% of intense partiers were abstainers between the ages of 10-18, but then sharply shifted to intense party status at age 20/21. Like the majority of mild party status members, this aligns well with the emerging adult literature which argues that this will be a period of experimentation.

The next majority pathway of the intense partiers at wave 6 (graph 9) also corresponds to a mild partier majority pathway, but is typified by escalation rather than de-escalation (see graph 6 for the corresponding mild partier pathway). 24.9% of the intense partiers at age 22/24 had been abstainers at age 10/11, escalated to mild delinquency and party status between the ages of 12-18, and finally escalated again to intense party status by age 20/21.

This is also parallel to the escalation/de-escalation pathway that 10.5% of the wave 6 mild partiers followed, graph 10 shows the next majority path for intense partiers. 7.1% of the intense partiers at wave 6 had been abstainers at age 10/11, experienced a period of mild delinquency and partying between age 12-15, but then escalated to versatile behaviors at 17/18. For this group, the intense party

behaviors at age 20-25 represent de-escalation from the versatile behaviors at age 17/18. While the mild partiers at wave 6 had a similar pathway but was dominant by female membership, the pathway for the intense partiers at wave 6 does not indicate gender differences in membership.

The final majority pathway for intense partiers at wave 6 is the only intense party path that does not have a corresponding path in the mild partier pathways. Graph 11 shows that 7.1% of the intense partiers at wave 6 follow a path of de-escalation followed by escalation to the intense party status by age 20/21. These individuals were engagers at age 10/11, de-escalated to mild delinquency and party statuses between age 12-18, but then escalated to the intense party status by age 20/21. These individuals demonstrate a low level of antisocial behavior throughout adolescence and young adulthood, but do not engage in versatile behaviors after age 10/11.

Finally, graphs 12-17 show the majority pathways for those who are members of the versatile status at age 22/24. Graph 12 displays the largest majority of wave 6 versatile members' pathway. About 15.5% of the versatile actors at wave 6 had been abstainers throughout adolescence and then shifted abruptly to versatile behaviors at age 20/21. This pattern of abstinence followed by a shift to engagement is also seen in the largest majority pathways for the other engaging groups as well (see graphs 5 & 8). This moreover corresponds with the evidence provided by the transition probabilities, which indicate that the transition between ages 17/18 and 20/21 is characterized by escalation in behavior. These pathways further clarify that a great deal of this escalation is being experienced by individuals who had experienced sustained non-engagement throughout adolescence.

This finding of emerging adulthood onset of antisocial behavior is directly opposed to the prevailing notion that adult onset of behavior is unlikely (Moffitt, 2006). The current results support the arguments of Mata and van Dulman (2011) who also find evidence for offending onset during emerging adulthood. They argue that previous research has found little support for adult onset because it has largely been based on data from the 1990s. This time period is before the advent of emerging adulthood and is thus unlikely to uncover the kinds of behavior patterns experienced by this developmental period as it is a relatively new phenomenon of decreased supervision but delayed responsibility.

The next majority pathway of versatile actors at age 22/24 (graph 13) show that 14.3% of these individuals experienced gradual escalation in behavior. At age 10/11, they were abstainers. Between ages 12-18, they were mild delinquents and partiers, but by 20/21 they had escalated to versatile actors. The next majority (graph 14) demonstrate a very similar pattern of gradual escalation, but transitioned to the versatile behavior status one transition point earlier at 17/18. This represents about 8.3% of the versatile actors at wave 6.

The next two groups demonstrate de-escalation/escalation patterns. Graph 15 shows that 5.9% of the versatile actors at wave 6 were engagers at age 10/11, de-escalated to mild delinquents and partiers between 17-18, but then escalated to versatile actors by age 20/21. Similarly, another 5.9% of the sample follow this same pattern, but escalate to versatile behavior status earlier at age 17/18 (graph 16).

The final majority pathway of the versatile actors at wave 6 demonstrate a period gradual but delayed escalation. Graph 17 shows that 5.9% of the wave 6 versatile actors were abstainers through ages 10-18, escalated to intense or mild party status at age 20/21, and then escalated to versatile behaviors at age 22/24. This majority pathway indicates that emerging adult experimentation may be a stepping stone to more serious forms of antisocial behavior in young adulthood for some individuals.

Discussion Specific to Research Question #3

The majority pathways further demonstrate the tendency for many adolescent abstainers to escalate in behavior around the age of 20/21. This pathway was the majority one for all of the engaging groups at wave 6 (age 22/24). The literature concerning emerging adulthood suggests that this type of escalation may correspond to a period of exploration and experimentation, particularly when involving drug behaviors (Fagan & Western, 2005). This is in direct contrast to the predictions of the AGTISC which argues that this period is characterized by desistance and de-escalation in behavior (Sampson & Laub, 1993). Also, as Massoglia and Uggen (2010) have noted, engagement in antisocial behavior during these years may be particularly damaging to adult opportunities such as higher education, employment, and pro-social romantic relationships. The pathways demonstrated in this analysis highlight the importance of intervention and prevention for otherwise adolescent abstainers who shift to engagement. As Sampson

and Laub (1993) have noted important turning points of desistance, it is likely that there are turning points of escalation at play as well.

The pathways also demonstrate the similarities between the pathways of the mild and intense partiers. Each of these partier groups had a majority pathway of abrupt escalation (graph 5 & 8), gradual escalation (graph 6 & 9), and escalation/de-escalation (graph 7 & 10). The similarities between the status' pathways suggests similar developmental processes, but the probability of substance and vehicular misbehavior is much more heightened for the intense party group.

Post hoc gender crosstabulations shown in tables 21-22, suggest gender differences between these two groups' pathways as women are much more likely, at 94.7%, to follow the escalation/de-escalation path that leads to mild party behaviors at age 22/24 (table 21). On the other hand, men are more likely to follow the pathway of abrupt escalation at age 20/21 leading to intense party behaviors at wave 6 (table 22).

The gender crosstabulations performed for status membership at each wave also suggest that men are more likely to belong to the intense party status and women to the mild party status at age 22/24 (tables 21-22). This suggests that while the pathways to the partier groups are very similar, gender is likely a key distinction as men are more likely to escalate to a more intense behavior group than women.

For the most serious behavior group, those who become versatile actors in the final wave tend to engage in these behaviors later in life. This is in contrast to the prediction of the DTT which suggests that membership in a violent and versatile offending group will be positively related to sustained membership in that group (Moffitt, 1993). In this sample, less than 1% of the total number of individuals (N=4) maintained versatile status throughout adolescence and young adulthood. This percentage of life course persistent offenders is lower than other studies that find percentages ranging from 3% to 6% (Moffitt, 2006). The majority pathways for versatile actors at age 22/24 demonstrate that shifts to versatile behaviors tend to occur after adolescence. However, while sustained membership in a versatile group is rare, experiencing a period of versatility is more likely for those who are members of an engaging group at the final wave of data (age 22/24). Table 24 displays the counts of individuals who traversed pathways

that contained a period of versatile membership, and this table shows that about 14% of abstainers by age 22/24 had experienced a period of versatility compared to 36% of mild partiers and 34% of intense partiers. Thus, it is less likely for abstainers in young adulthood to have experienced a period of versatility than any of the engaging groups.

Concerning desistance by age 22/24, the CCP argues that shifts from more specialized and serious clusters to less specialized and less serious clusters of antisocial behavior at earlier time points will be positively associated with desistance at later time points (Le Blanc & Loeber, 1998). However, the analysis of the pathways to abstinence at wave 6 demonstrates more of a pattern in line with the DTT predictions about adolescent-limited offenders (Moffitt, 1993).

Graphs 1-4 show that the majority of those who move to the non-engaging group by age 22/24 from engaging groups at early time points are likely to come from either mild delinquency or party statuses in adolescence. The mild delinquency and party statuses at earlier time points are characterized by more specialization and less seriousness, and none of the majority pathways, other than the one early desisting pathway (graph 4), contained individuals who were members of any versatile behavior group in earlier time points. This may also relate to previous findings that identify greater desistance stemming from certain kinds of offenses rather than others. Armstrong (2008b) found desistance was more likely for those who specialized in drug and miscellaneous offenses rather than those who specialized in violence or property crimes.

The DTT also predicts that membership in the nonviolent/specialized group will be positively related to desistance in emerging adulthood. To further explored this hypothesis crosstabulations between the wave 4 (age 17/18) status members and wave 5 (age 20/21) abstainers were conducted. At this transition point, most movement between statuses occurs (see tables 17 & 19). Furthermore, the following transition period also demonstrates the greatest continuity in behavior, suggesting that the transitions made between ages 17/18 and 20/21 are lasting ones.

To review the results of this crosstabulation, please refer to table 23. Aabout 17% of the wave 4 partiers move to the abstaining status at wave 5. On the other hand, only 3% of the wave 4 versatile

actors make this transition. This means that the wave 5 abstainer group is comprised of about 17% of the partiers from the previous time point, but only less than 1% of the versatile actors from the preceding time. This difference here is significant at the .000 level. Thus, it is much more likely for those in the nonviolent/specialized group to transition to the abstinence category than it is for those in the versatile and more violent prone group to do so. This largely supports the DTT prediction and is consistent with previous findings (Armstrong, 2008b).

Another DTT prediction concerns gender. Because women are less likely to be adult persistent offenders, they will also be more likely to desist than men (Moffitt & Caspi, 2001). In order to address this question, a crosstabulation of gender by membership in the abstaining category at the final wave was conducted. Those who had been members of the abstaining status throughout all waves were excluded from the analysis to insure that only desisters were tested. No significant difference was found between gender and desistance by the final wave at the .05 level. This suggests that women are not more likely to desist than men in this sample.

Beyond the questions of desistence, two gender differences were noted in the analysis of the major pathways to wave 6 status membership (See table 21 & 22; graphs 7 & 8). First, women are more likely to follow the transition pathway of adolescent escalation to versatility and de-escalation to the mild party status in young adulthood. Of those who follow this path, 94.7% are women. Thus, while women may not be any more likely to desist altogether, they are more likely to de-escalate from versatile behavior to mild partying behavior than men. This suggests that displacement patterns as discussed by Massoglia (2006) may have gendered processes.

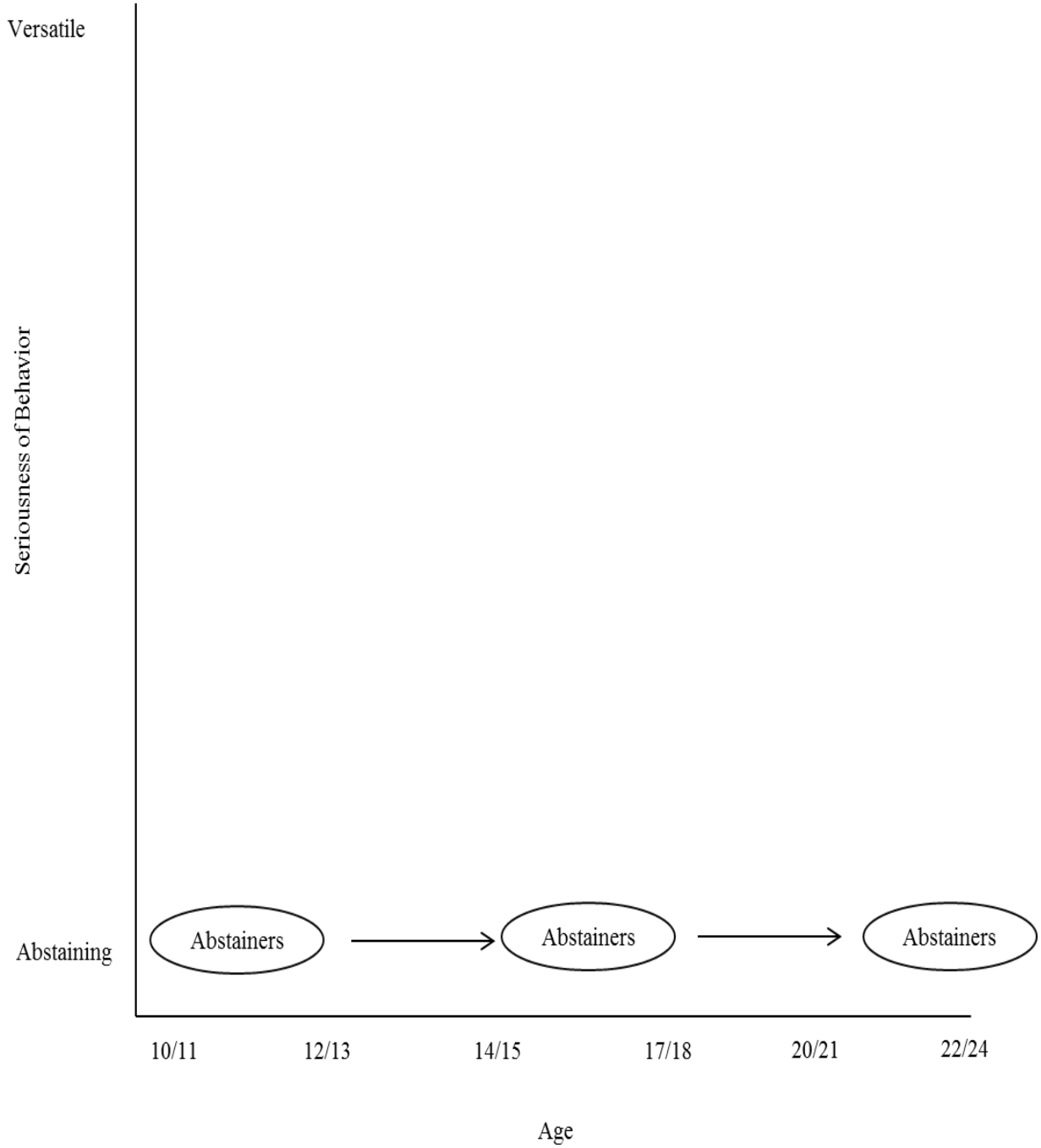
Second, men are more likely to follow the pathway which sharply escalates to the intense party status at age 20-25 from continued abstinence in adolescence. Of those who follow this path, 60.7% are men. This corresponds to other research which has found that men are more likely to escalate substance abuse during emerging adulthood (Chassin, Pitts, & Prost, 2002; Hicks et al., 2007; King & Chassin, 2007; Hassong & Chassin, 2004).

All and all, the majority pathways reveal that escalation during the age 17/18 to 20/21 transition are largely occurring for individuals who have experienced prolonged and sustained non-engagement throughout adolescence. This suggests the influence of exploration and experimentation during the emerging adult years (Arnett, 2000; 2004), but it also suggests that a greater examination of turning points of escalation is warranted.

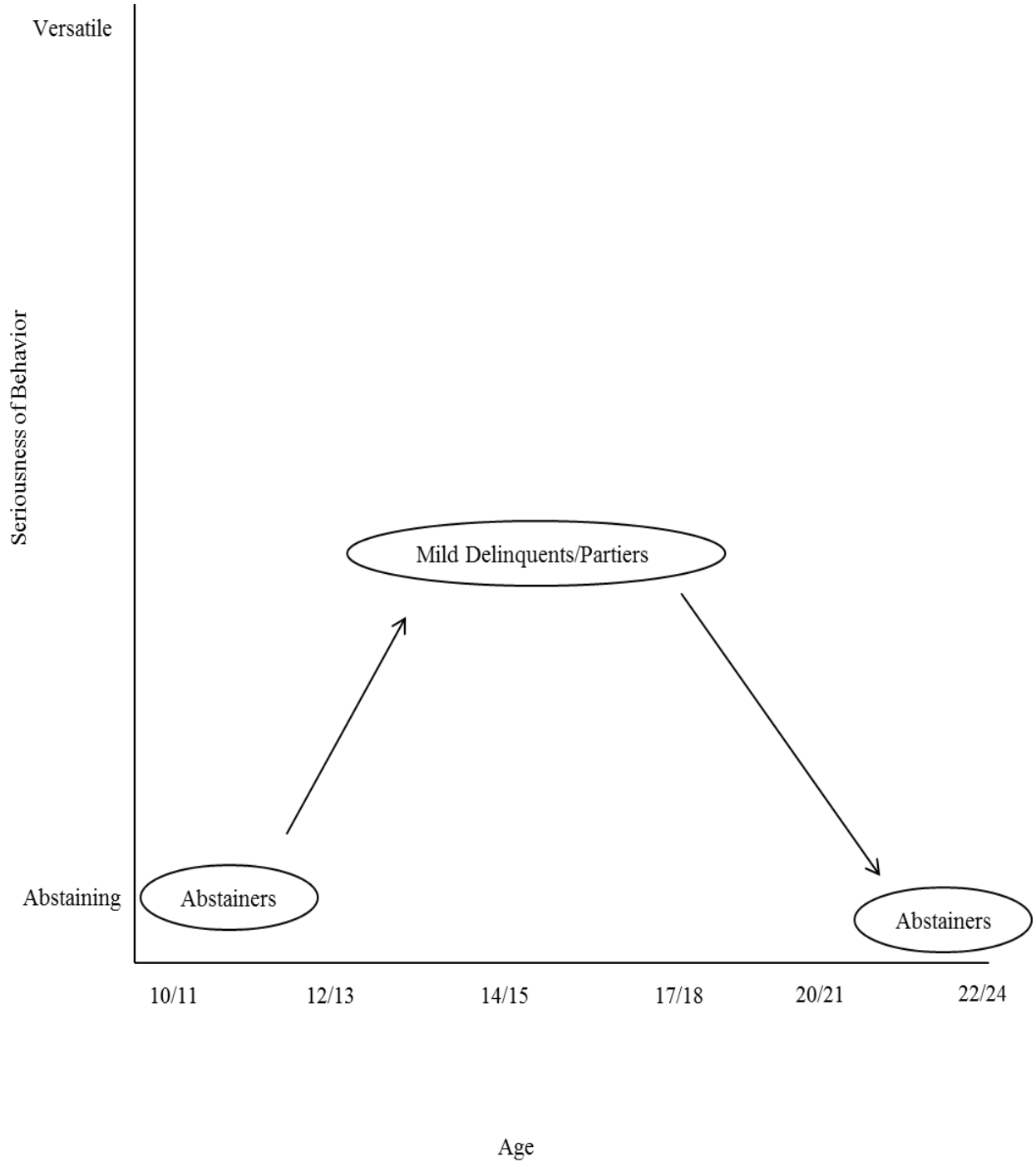
Concerning young adulthood engagement, the similarities between the pathways to mild and intense party behaviors suggest that members of these status groups share similar developmental characteristics. The fact that men are more likely to abruptly transition to an intense party status in emerging adulthood while women are more likely to de-escalate to mild party status at this same period implies that important gender distinctions are present.

For those who desist from antisocial behavior in young adulthood, certain characteristics are evident. Desisters are less likely to have experienced a period of antisocial behavior versatility. Corresponding to this, members of the versatile behavior group at age 17/18 are much less likely to desist by age 20/21 than those who belong to the specialized and nonviolent group. Also, the majority pathways to desistence are comprised of those who either desist very early or follow a pattern that corresponds to the structure implied by Moffitt's (1993) adolescent limited offenders. Thus, desisters may be more like those who largely abstain from antisocial behavior than persisting engagers. Those who desist are characterized by limited and mild engagement while those who persist experience more diverse pathways.

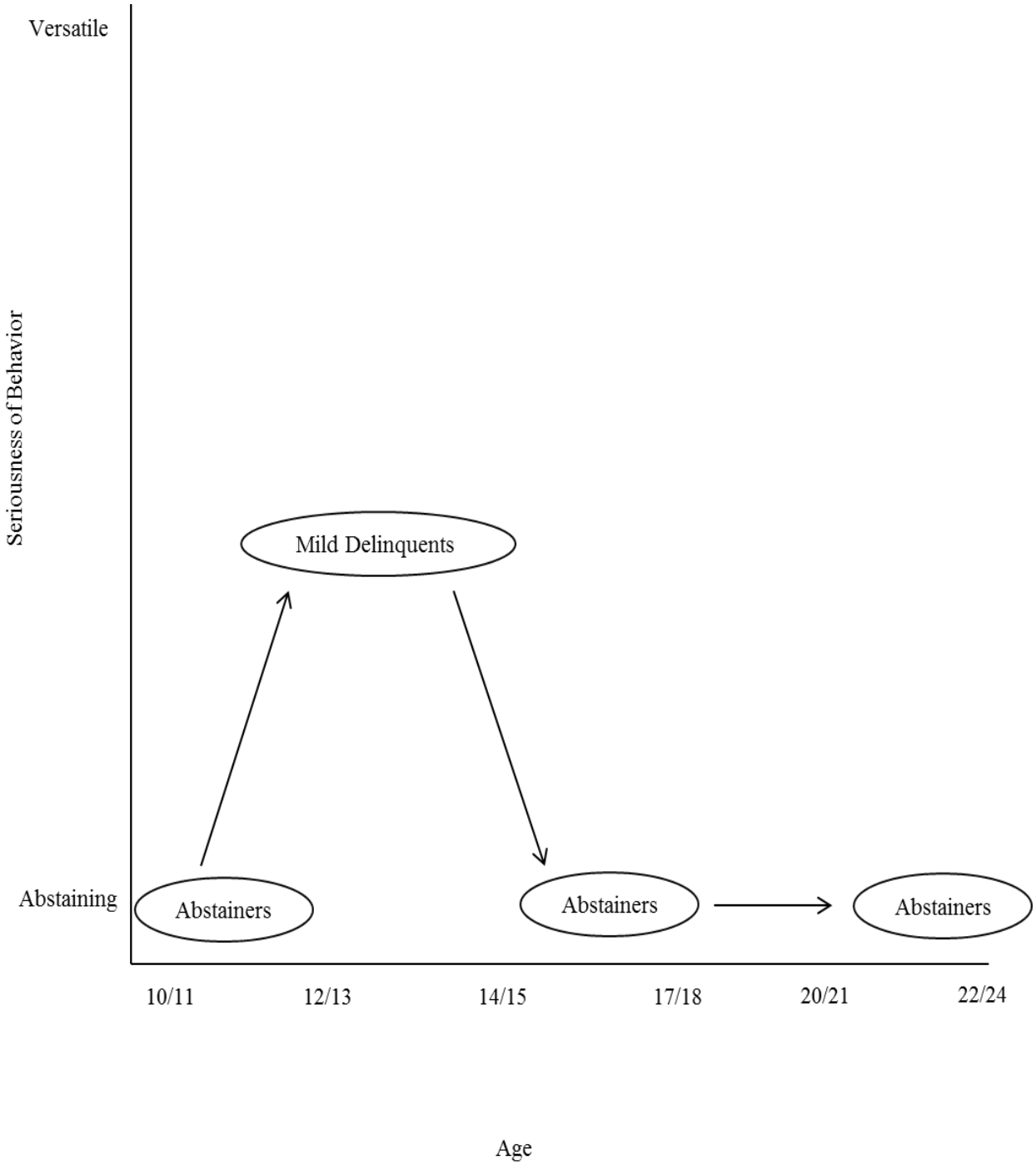
Graphs and Tables Relevant to Research Question #3



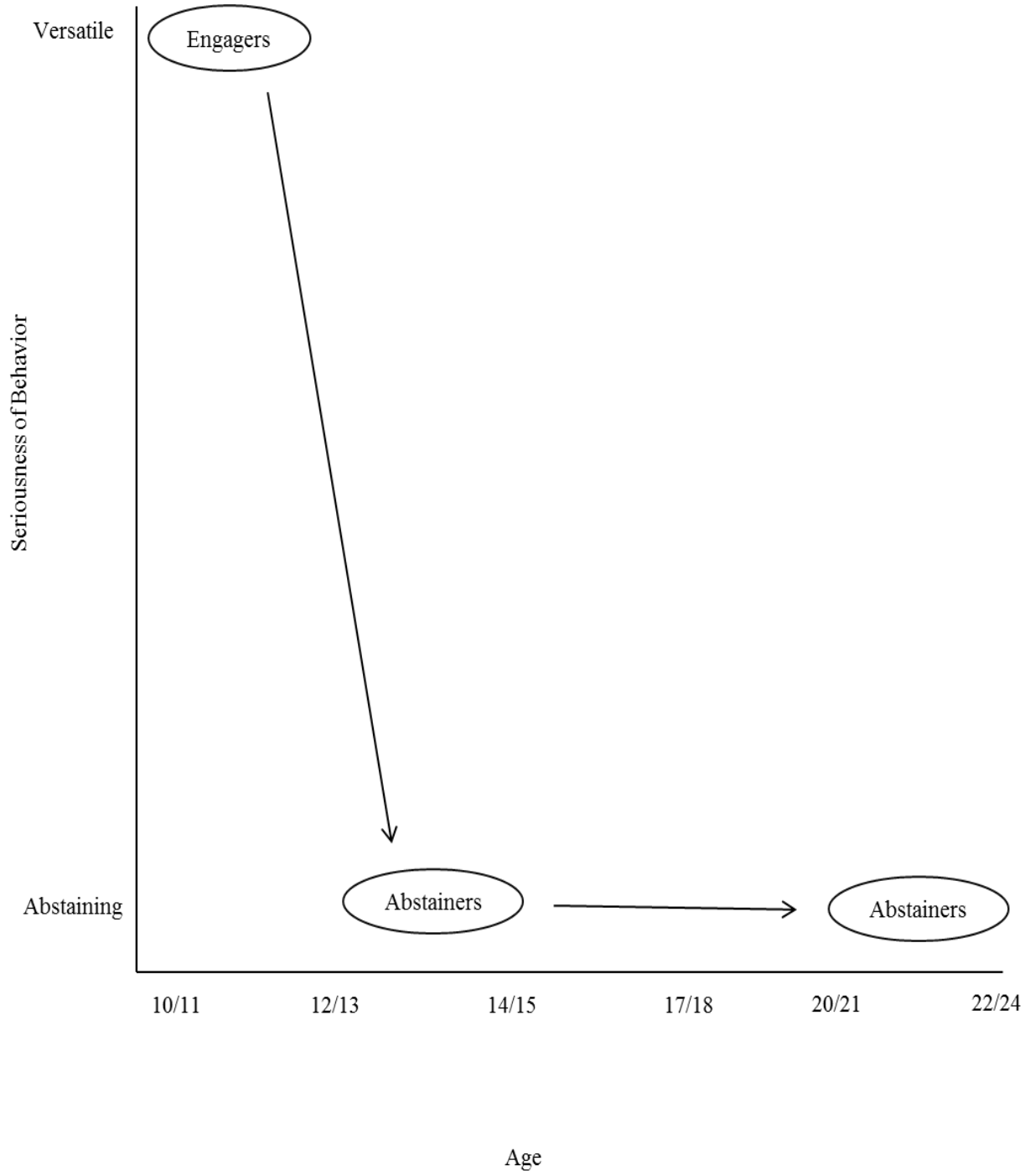
Graph 1: Abstainers at W6; consistently non-engaging



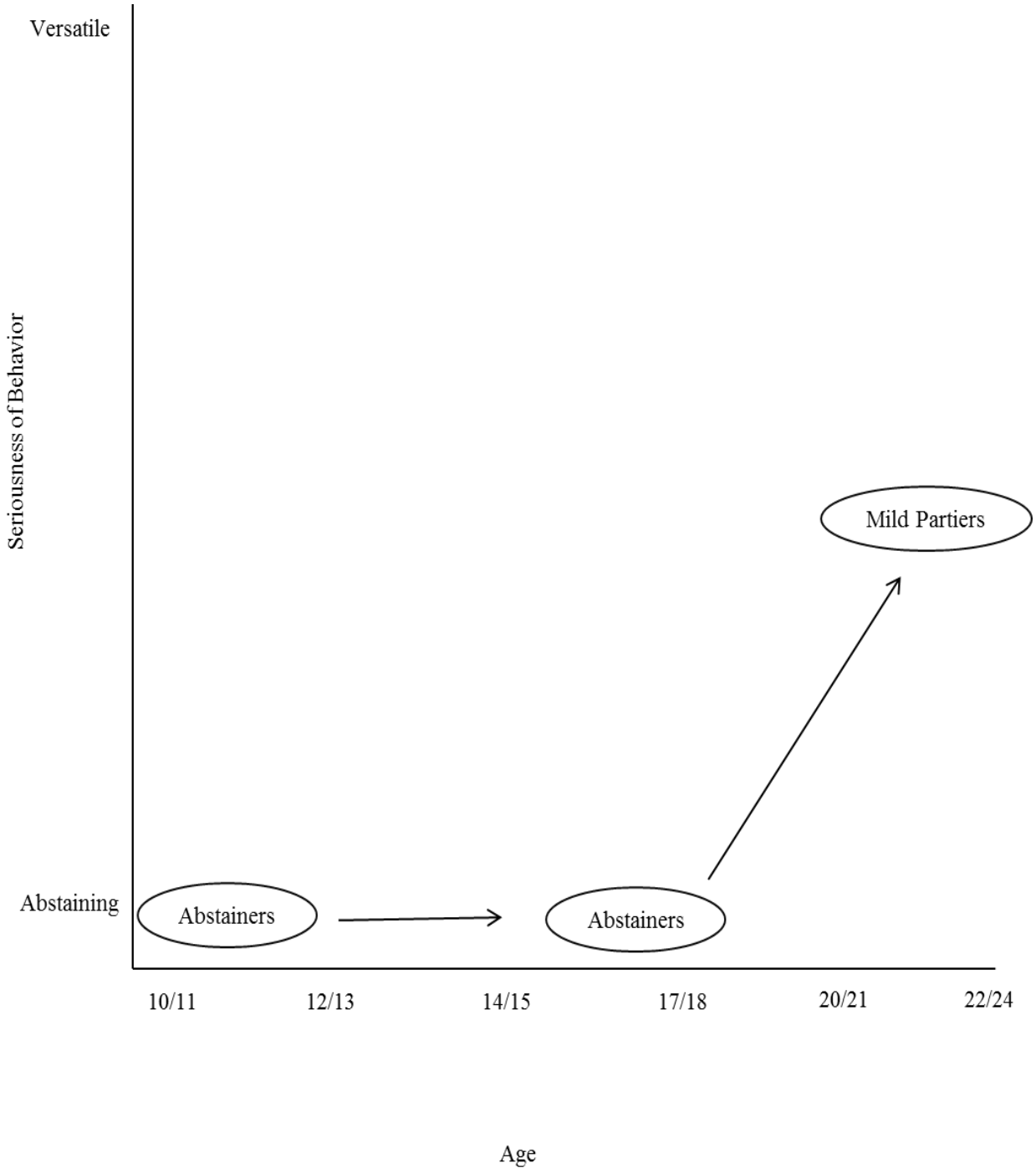
Graph 2: Abstainers at W6; adolescent limited (1)



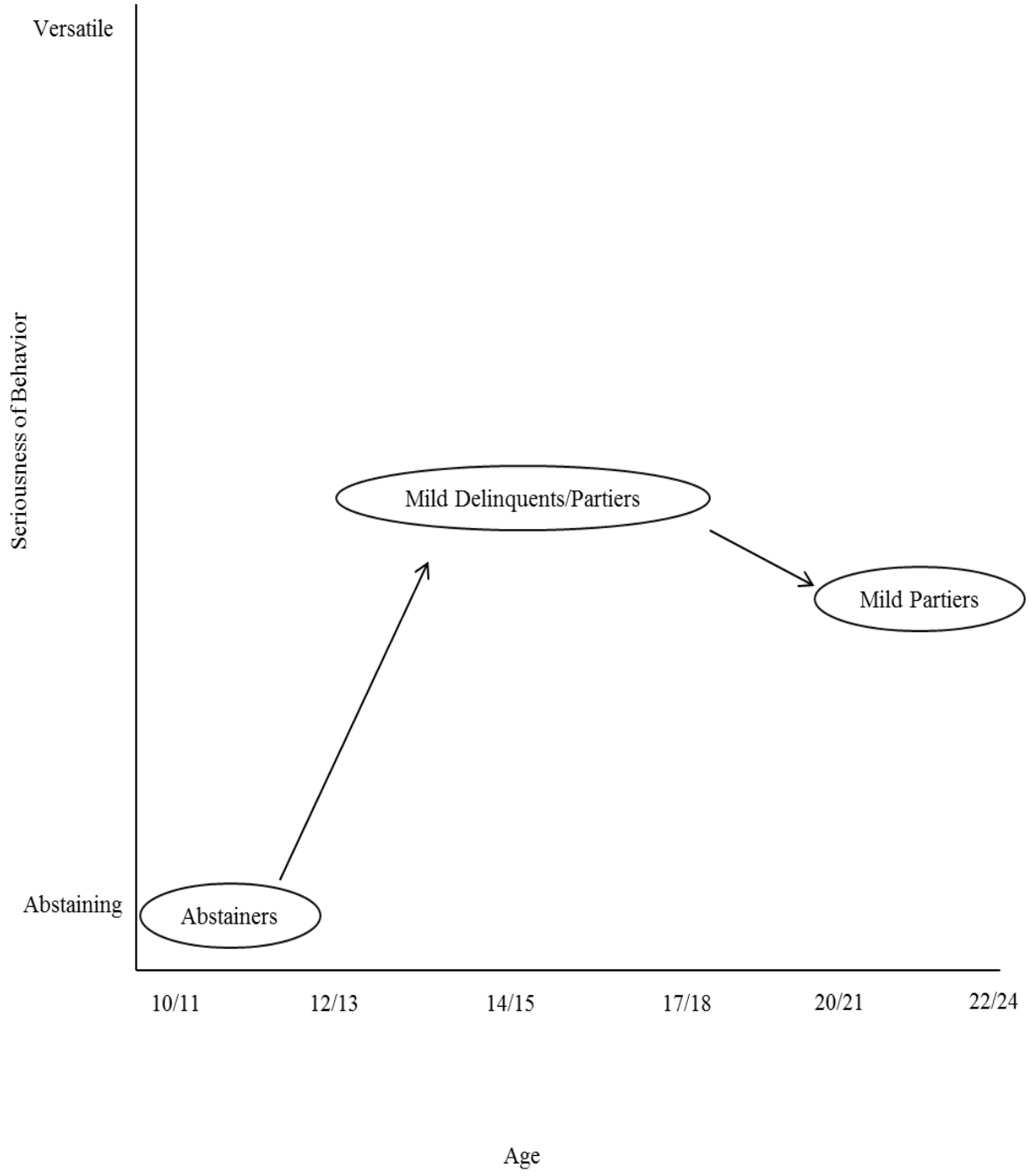
Graph 3: Abstainers at W6 (N=223); adolescent limited (2)



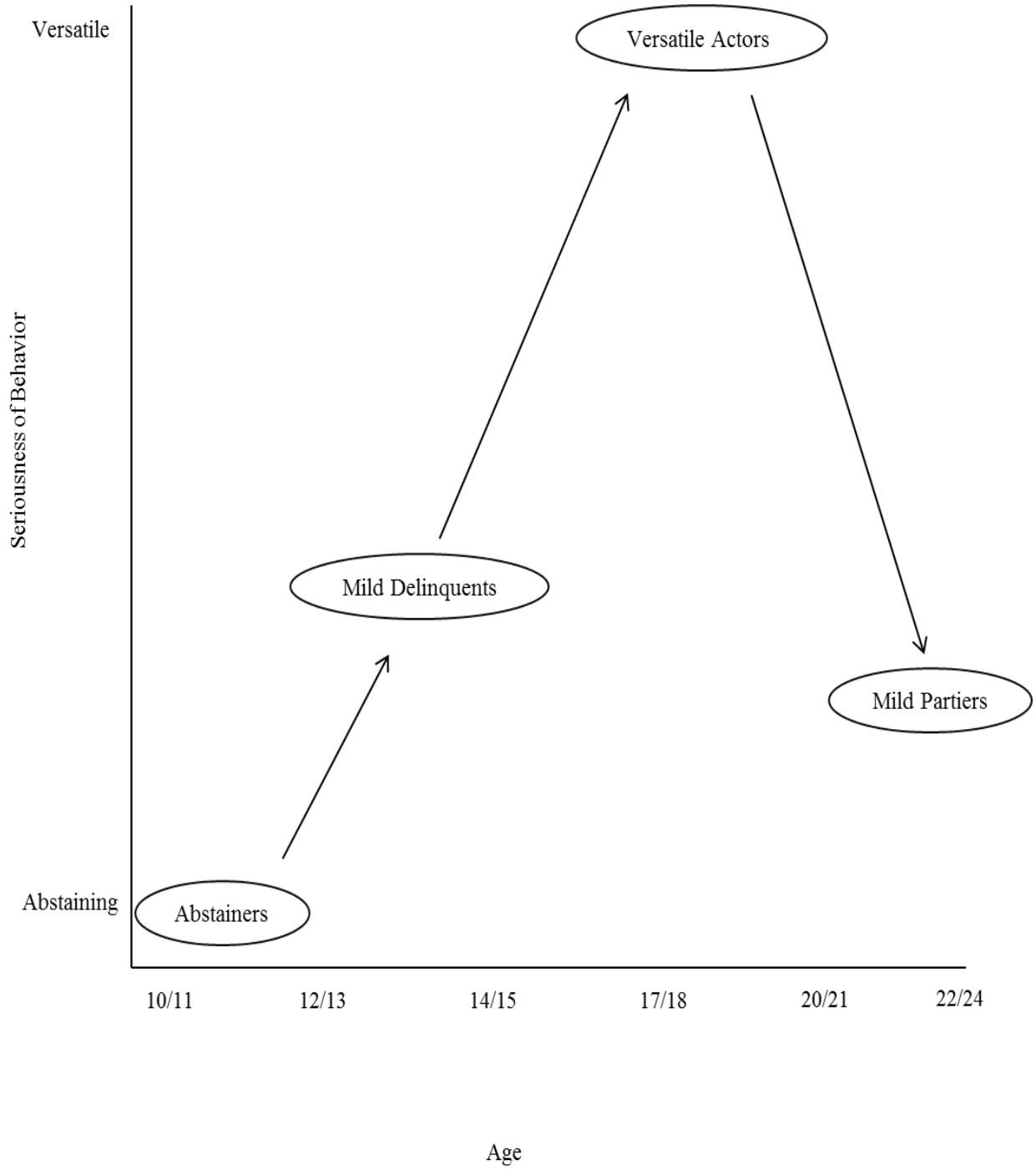
Graph 4: Abstainers at W6; early desistance



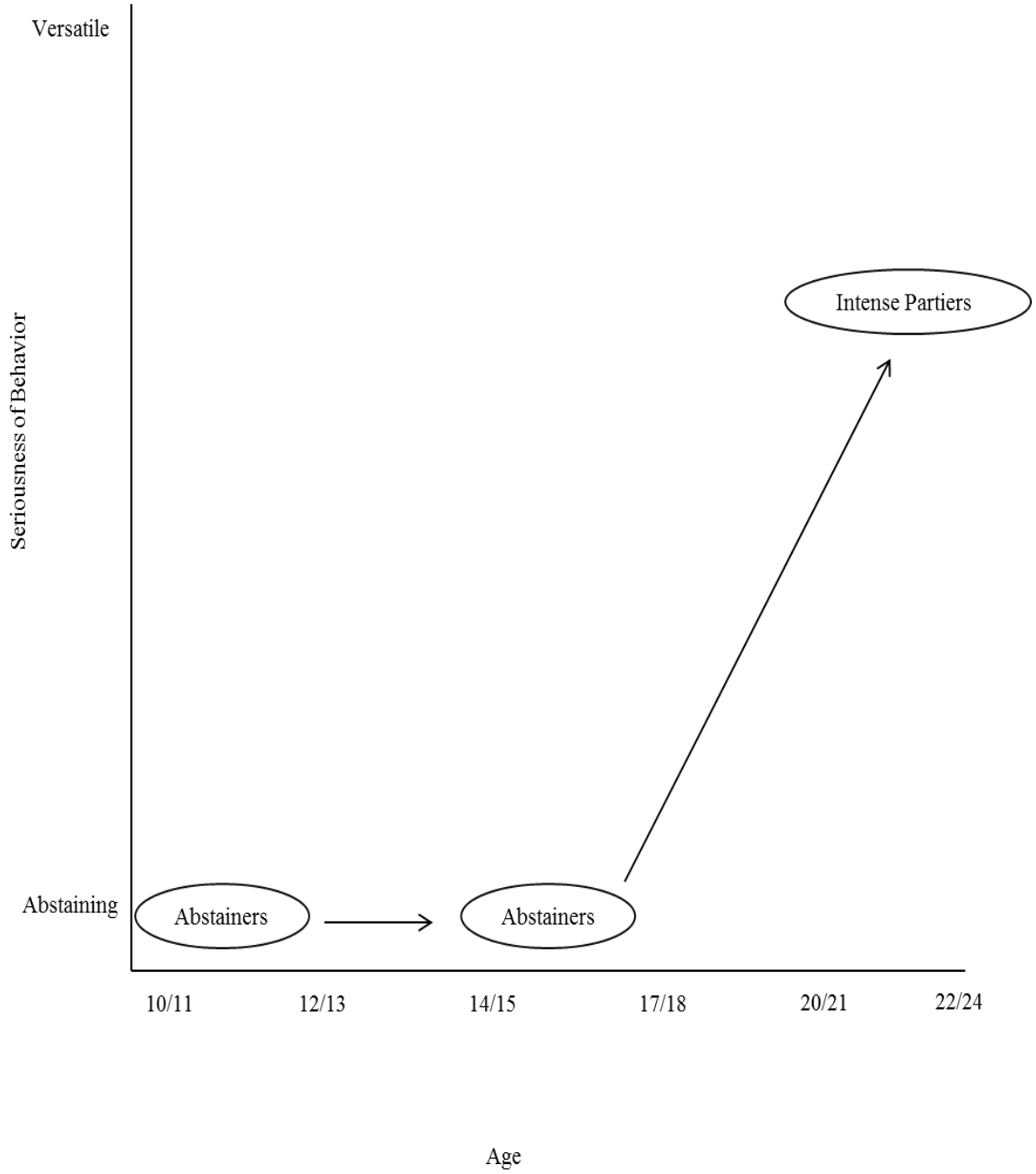
Graph 5: Mild Partiers at W6; emerging adulthood experimentation



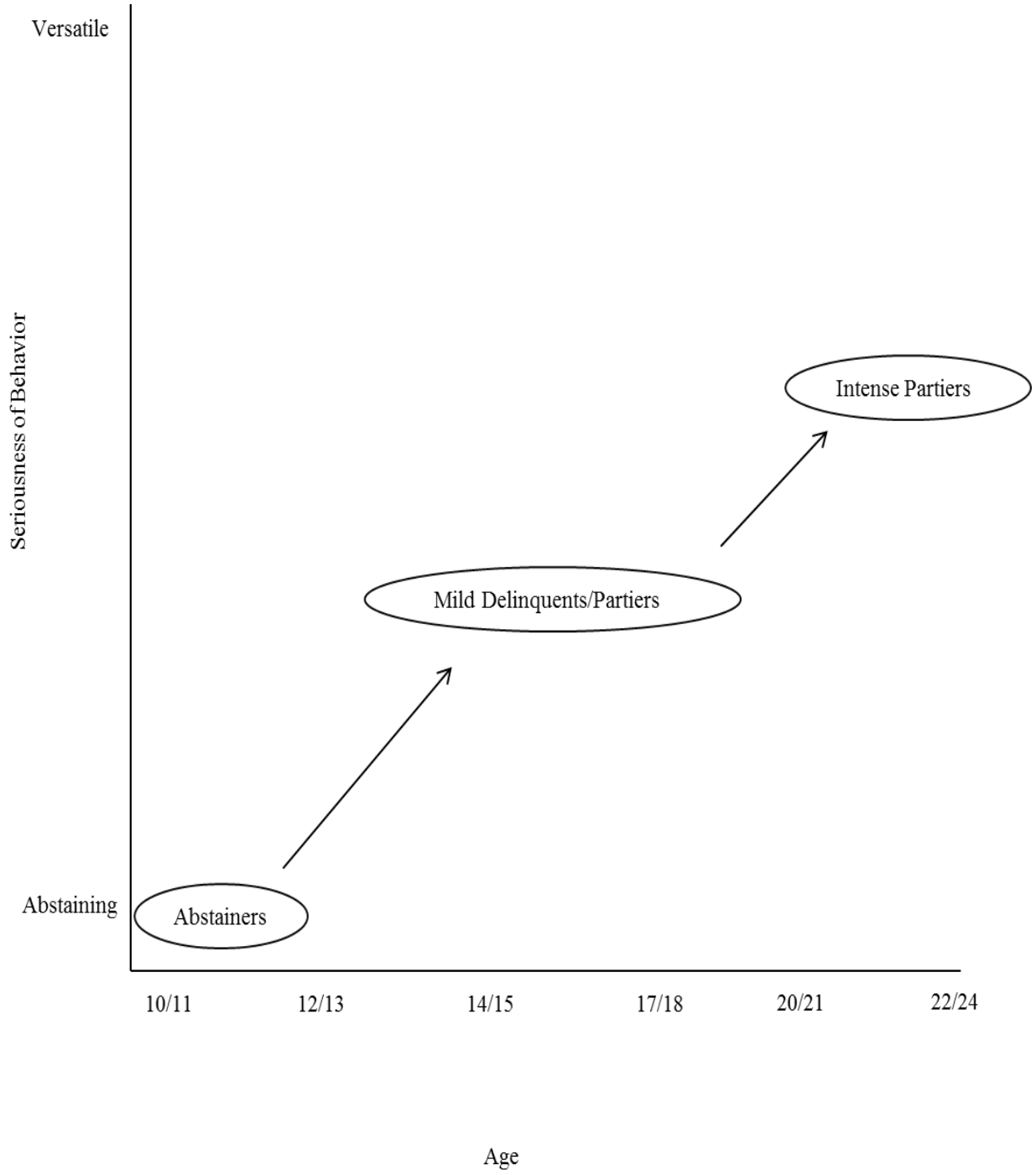
Graph 6: Mild Partiers at W6; sustained mild behavior



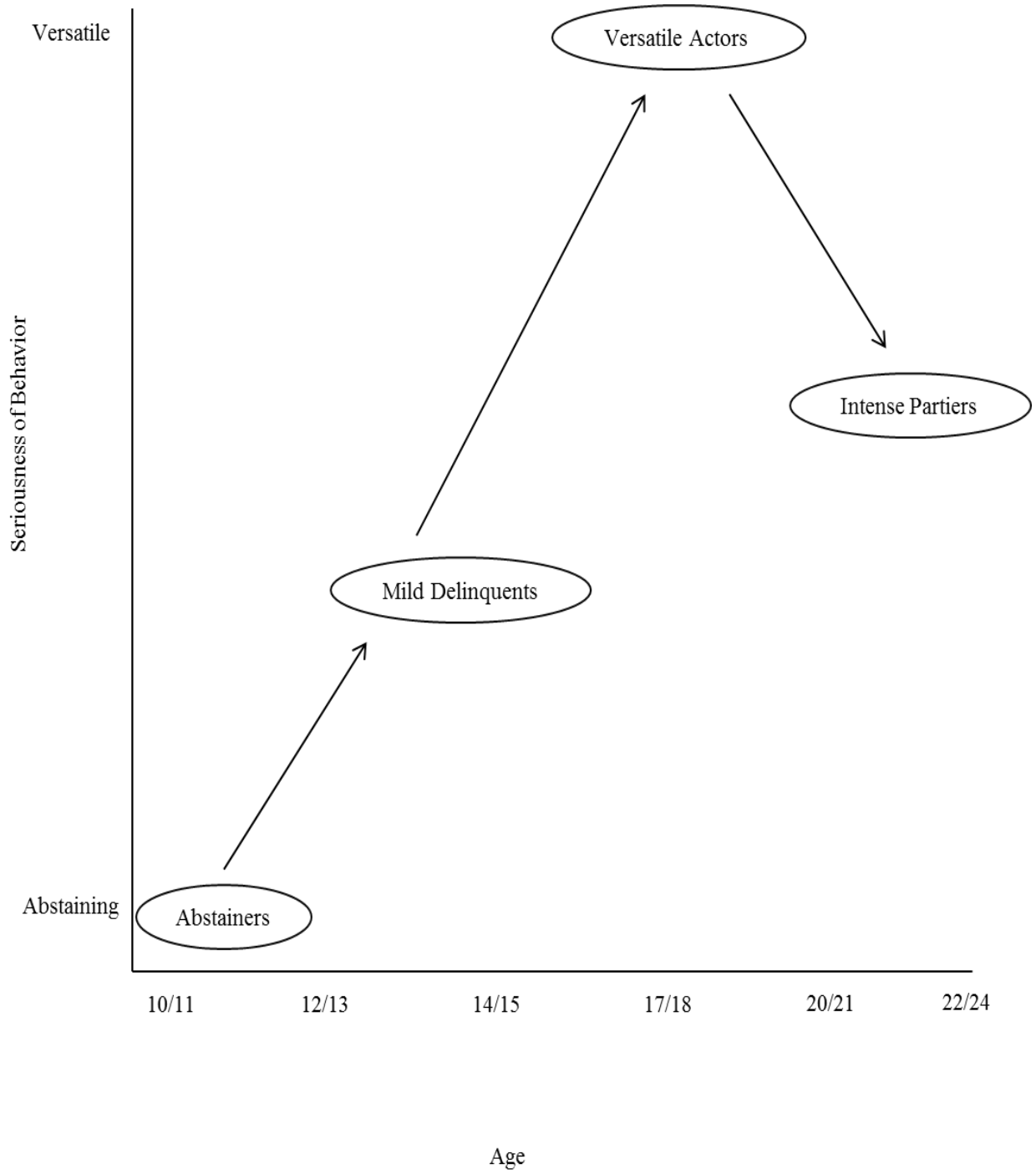
Graph 7: Mild Partiers at W6; escalation/de-escalation



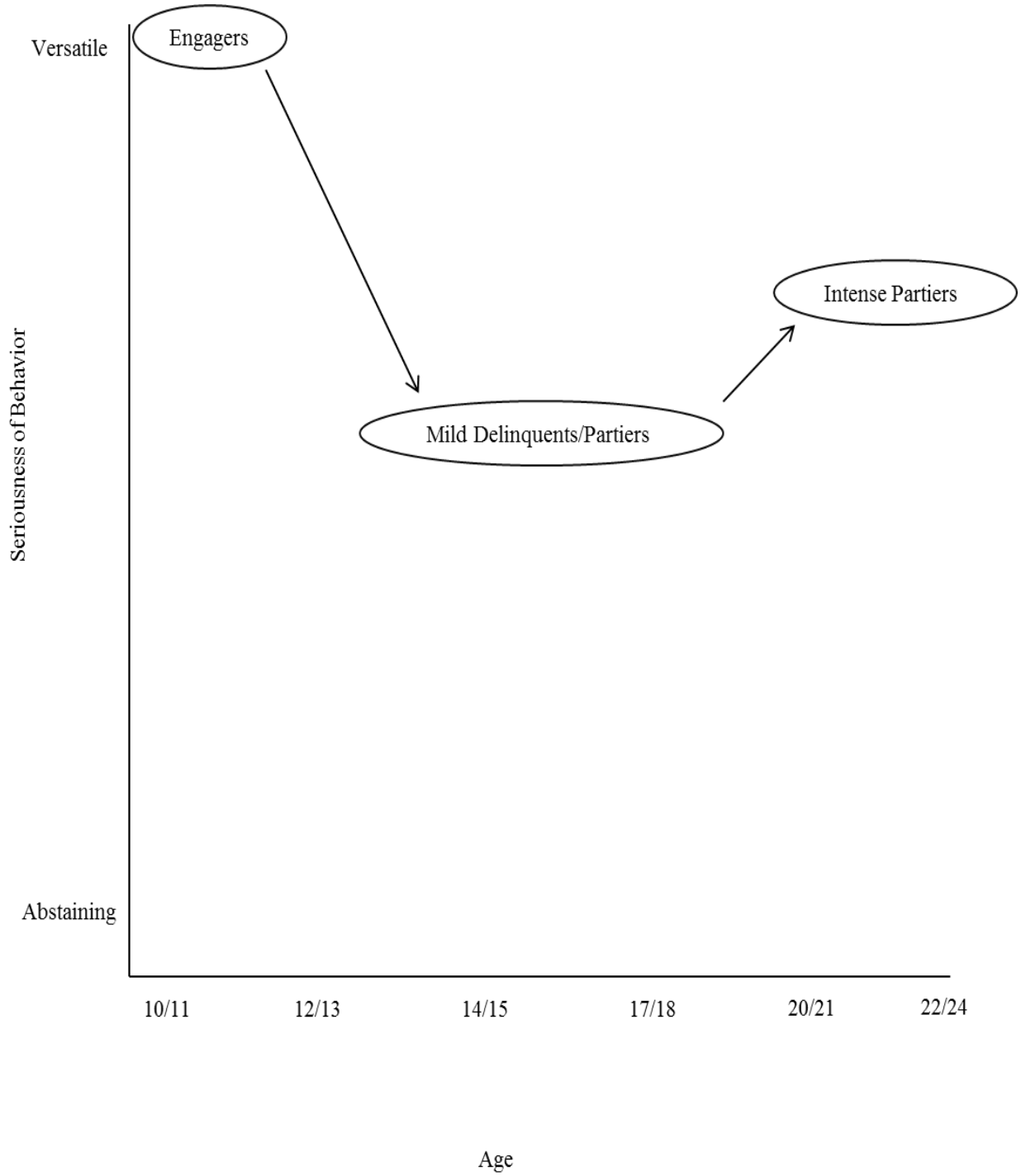
Graph 8: Intense Partiers at W6; abrupt escalation



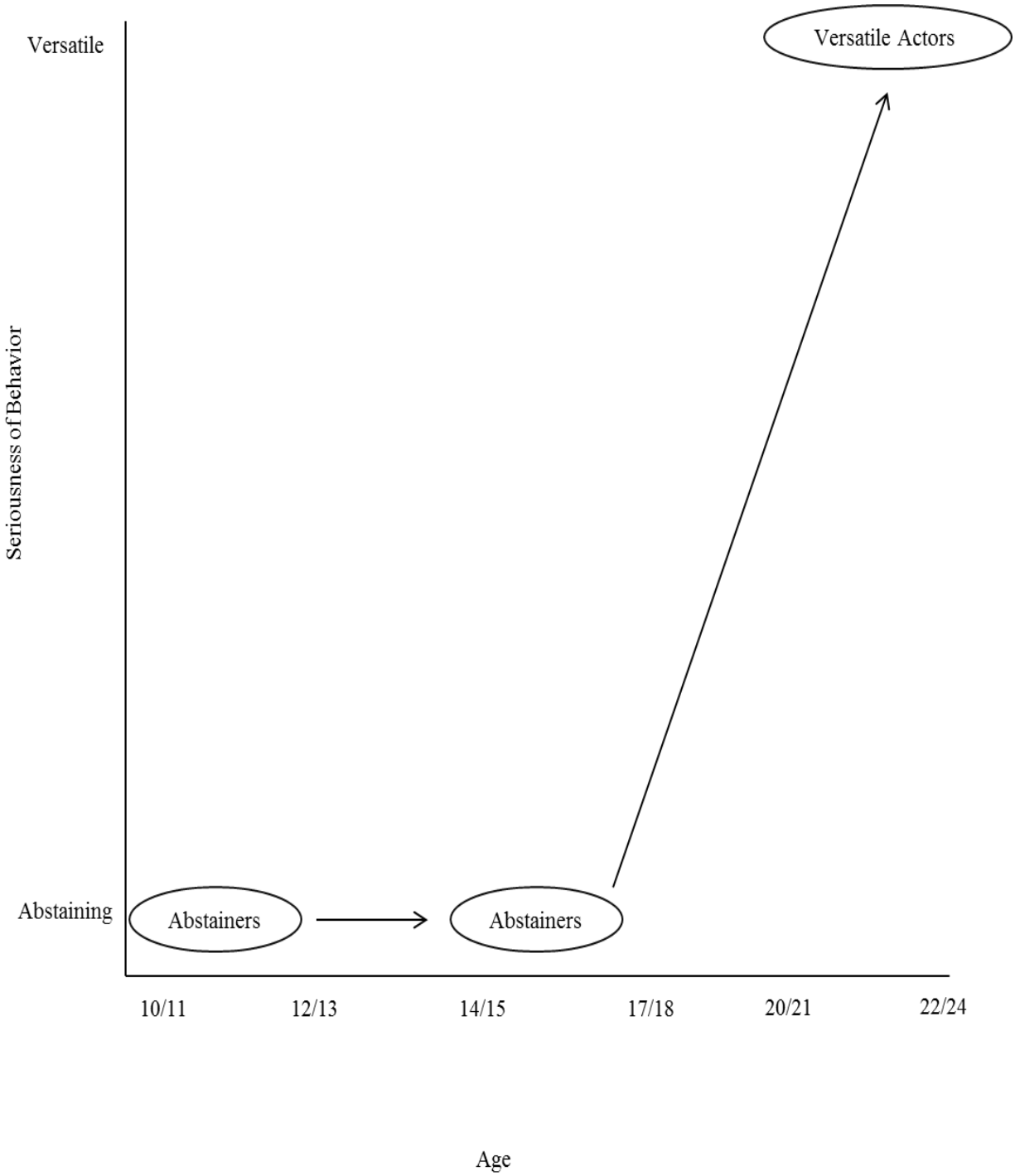
Graph 9: Intense Partiers at W6; gradual escalation



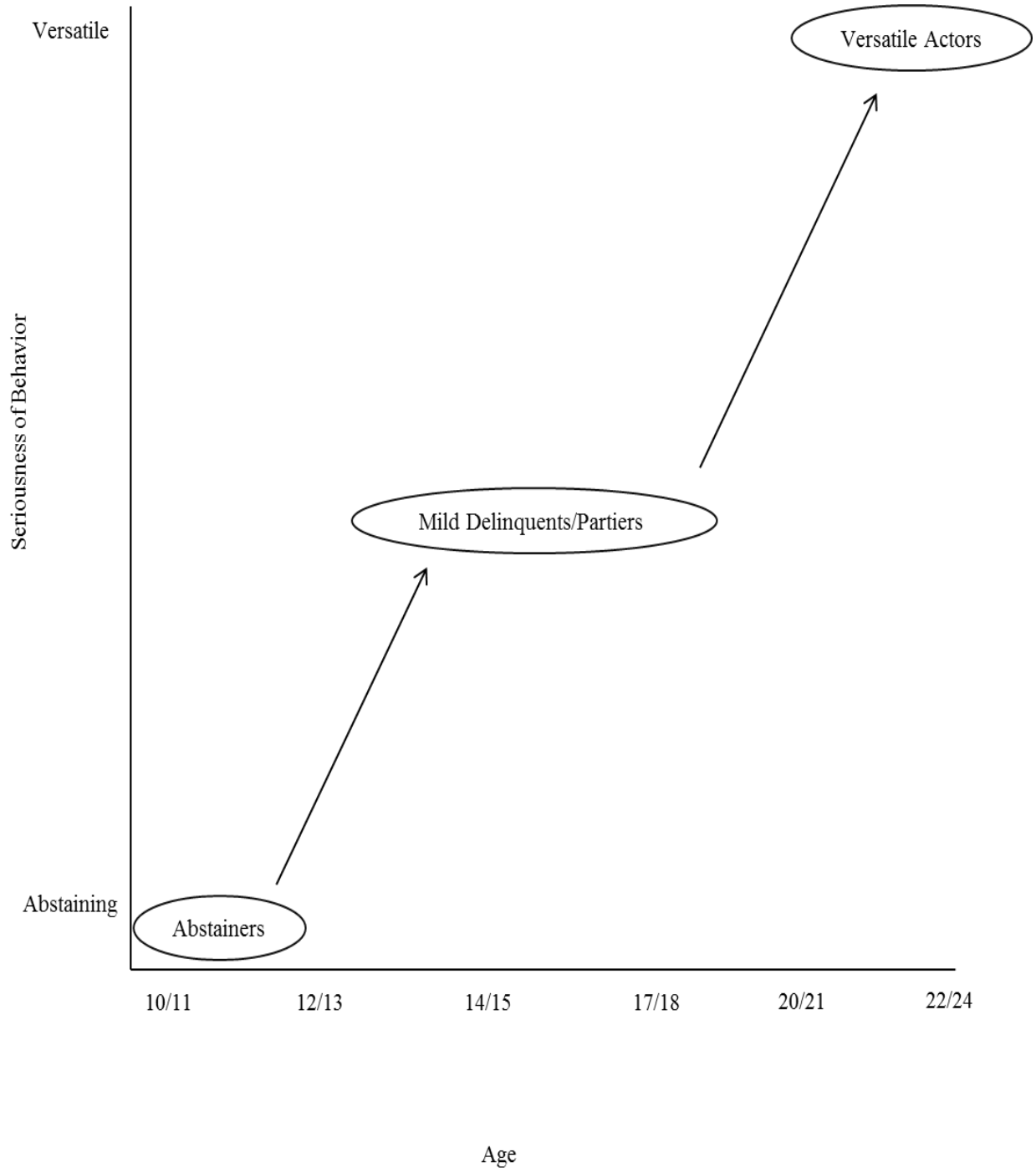
Graph 10: Intense Partiers at W6; gradual escalation/de-escalation



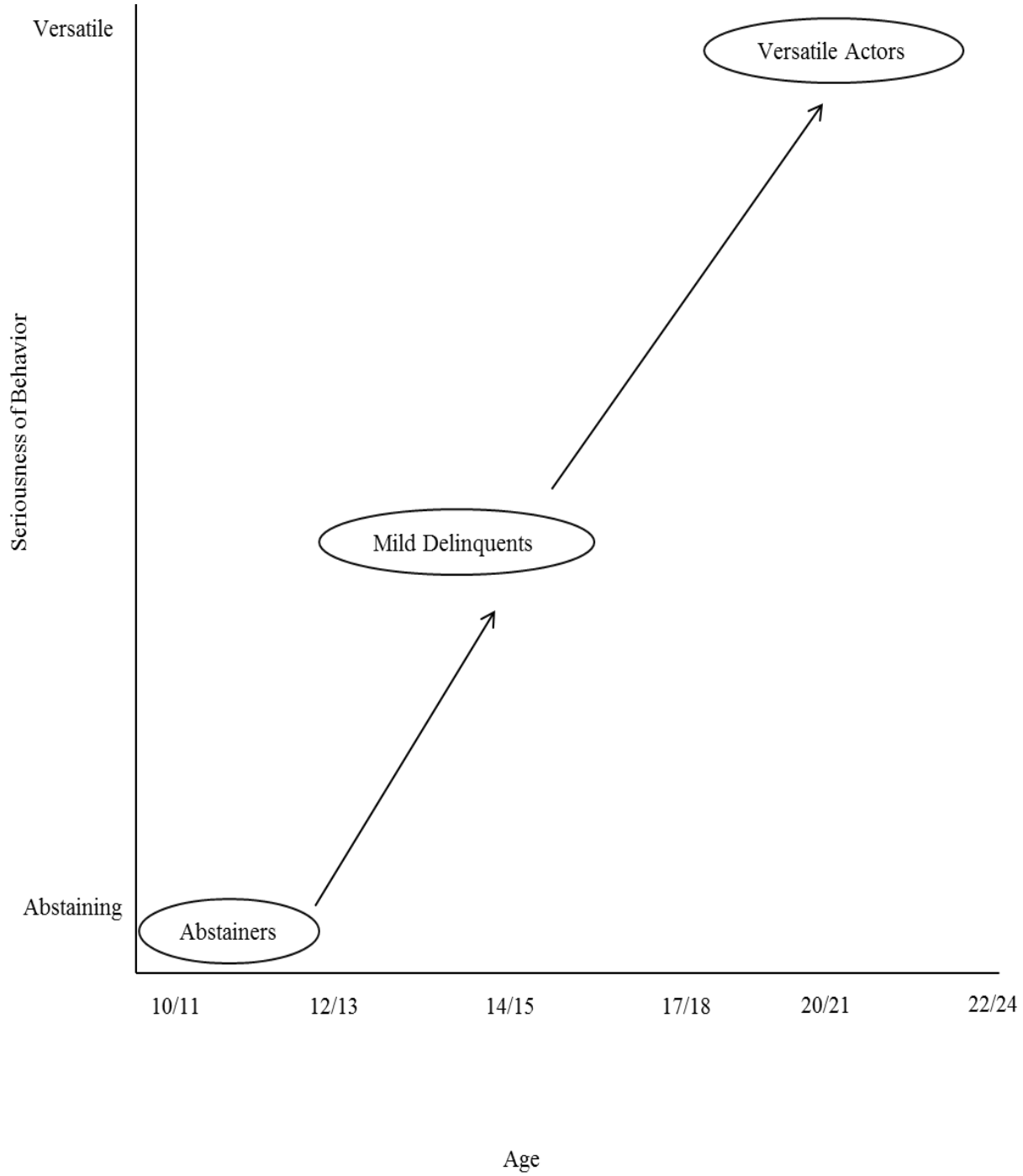
Graph 11: Intense Partiers at W6; de-escalation/escalation



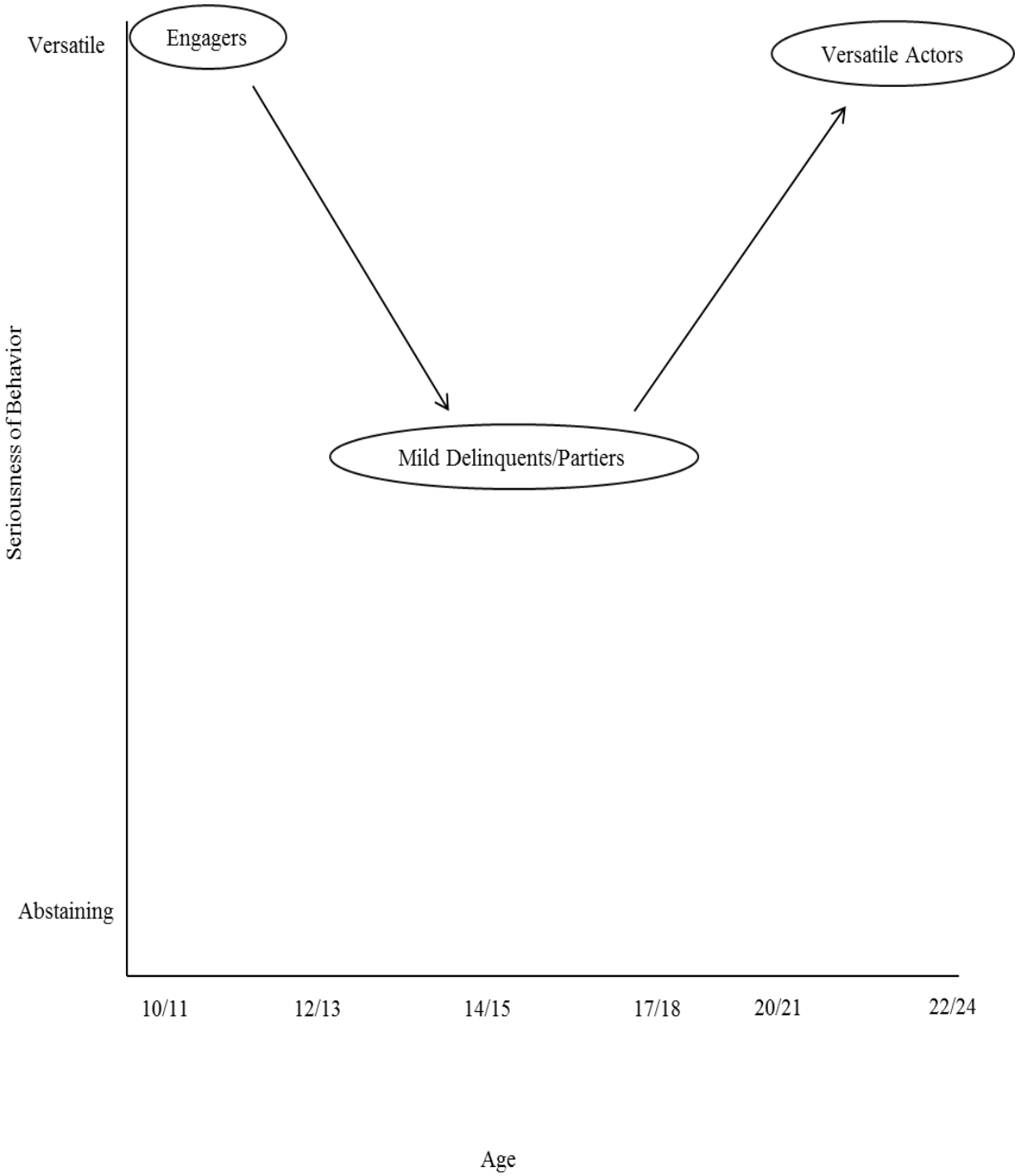
Graph 12: Versatile Actors at W6; abrupt escalation



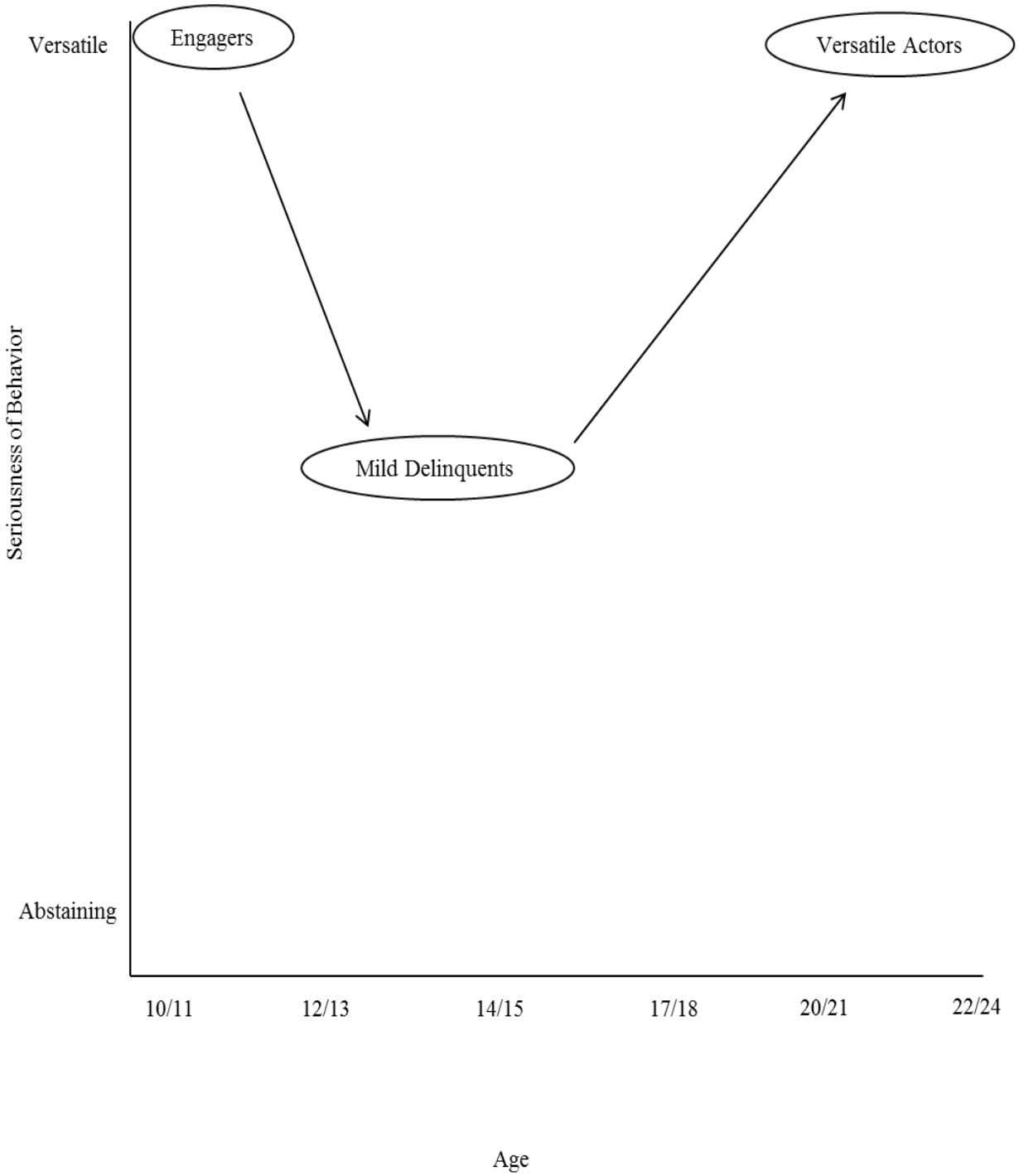
Graph 13: Versatile Actors at W6; gradual escalation (1)



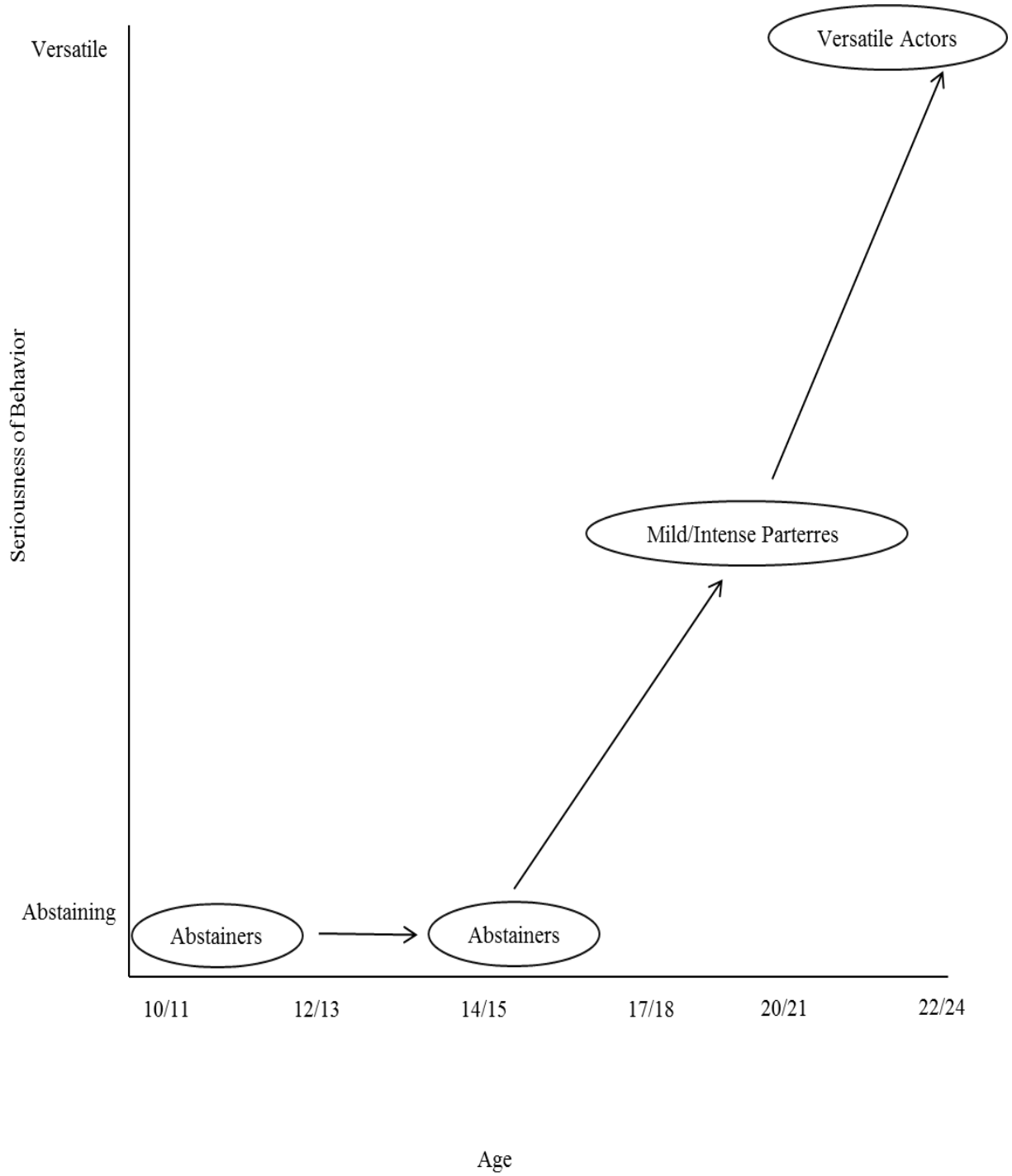
Graph 14: Versatile Actors at W6; gradual escalation (2)



Graph 15: Versatile Actors at W6; de-escalation/escalation



Graph 16: Versatile Actors at W6; early de-escalation/escalation



Graph 17: Versatile Actors at W6; late gradual escalation

Table 21: Crosstabulation for Pathway by Gender – Mild Partier at Wave 6 (age 22/24)

Gender	W6 MP: Adolescent Escalation & Adult De-Escalation	Other	Totals
Men	1 5%	267 42%	268 41%
Women	18 95%	370 58%	388 59%
Totals	19 100%	637 100%	656 100%

Chi square=10.257; 1df; p=.001
Fishers Exact Test; p=.000

Table 22: Crosstabulation for Pathway by Gender – Intense Partier at Wave 6 (age 22/24)

Gender	W6IP: Adolescent Abstinence & Sharp Adult Escalation	Other	Totals
Men	37 61%	231 39%	268 41%
Women	24 39%	364 61%	388 59%
Totals	61 100%	595 100%	656 100%

Chi square=10.914; 1df; p=.001

Table 23: Crosstabulation of Wave 4 (age 17/18) Status by Wave 5 (age 20/21) Abstinence

Wave 4 Status	Wave 5 Abstainers	Wave 5 Other	Totals
Partiers	35 17%	174 83%	209 100%
Versatile Actors	2 3%	66 97%	68 100%
Totals	240 87%	37 13%	277 100%

Chi square=81.155; 2df; p=.000
Fishers Exact Test; p=.002

Table 24: Counts of Experiencing a Period of Versatile Behavior by Final Wave's Status

	W6 Abstainers	W6 Mild Partiers	W6 Intense Partiers	W6 Versatile Actors	Totals
No Period of Versatility	191	115	111	0	417
Period of Versatility	32	65	58	84	239
Totals	223	180	169	84	656

CHAPTER 11

Conclusion

This analysis finds that antisocial behavior specialization is evident, dynamic, and related to desistance in young adulthood. Within discrete time points between young adolescence and emerging adulthood, specialization groups clearly manifest and are linked to life stage, suggesting the importance of developmental periods in antisocial behavior patterns. In partial agreement with the predictions of the CCP and the DTT, behavior statuses that reflect developmental progress and differential propensities are apparent. These groups differed in terms of behavior seriousness and levels of specialization, ranging from statuses characterized by abstinence, mild delinquency, party behaviors, and versatile behaviors that include a high probability for violent behavior.

Concerning change over time, continuity is clearly the dominant trend. On average, individuals have a higher probability of remaining within a like behavior status than escalating or de-escalating in terms of behavior seriousness and specialization. However, despite this continuity, two distinct periods of escalation, reflecting the predictions of the DTT and the emerging adult literature (Arnett, 2000; 2004), are striking. First, during adolescence, escalation to mild delinquency from pervious abstinence increases. The DTT predicts this kind of shift in behavior as adolescent limited offenders begin to engage in mild forms of delinquency. The next period of escalation occurs during the transition between the ages of 17/18 and 20/21, or emerging adulthood. While the AGTISC predicts that this period will be a time of de-escalation or desistance, the transition probabilities of this study show an escalation in party-like behaviors. As individuals age into emerging adulthood, they enter a period that is marked by reduced supervision, increased freedoms, and delayed responsibilities that has been hypothesized to correspond with experimentation and exploration, particularly concerning substance use (Arnett, 2000; 20004).

Finally, this study examines desistance in young adulthood and determines specific dominate characteristics that typify those that desist from antisocial behavior by the age of 24. Desisters are less

likely to have experienced a period of antisocial behavior versatility. The majority pathways to desistence are comprised of those who either desist very early or follow a pattern that corresponds to the structure implied by Moffitt's (1993) adolescent limited offenders. Thus, desisters may be more like those who largely abstain from antisocial behavior than persisting engagers. Those who desist are characterized by limited and mild engagement while those who persist experience more diverse pathways that often include periods of versatile and violent behavior.

Concerning engaging status membership in young adulthood, specific pathways are also evident. For each party status and the status typified by versatile behavior, the majority pathway was characterized by sustained abstinence throughout adolescence with an abrupt escalated shift to one of these categories. This finding suggests that while party behaviors may characterize emerging adulthood escalation, a shift to more violent and serious behavior forms is also likely. Future research should more fully explore the kinds of escalation turning points associated this kind of abrupt and serious shift in behavior.

This study also suggests that behavior specialization, change over time, and desistance differs by gender as well. Gender differences in specialization membership were not significant in adolescence, which corresponds with the DTT predictions of a reduced gender gap during this period (Moffitt, 1994). In young adulthood, around age 20-24, men are more likely to be members of the versatile behavior status, which is typified by an increase in the probability of engaging in violence. The greater likelihood for male membership in the versatile statuses is in line with both Moffitt's predictions, and other researchers' conclusions that men may have a greater tendency to engage in violent behavior (Blumstein et al., 1986; Hindelang, 1971; Johnson et al., 1995; Smith & Visher, 1980; Steffensmeier, 1993; Steffensmeier & Allan, 1996).

Two major pathways also are gender specific. While escalation is a common trend for both genders during emerging adulthood, men are more likely to abruptly escalate to intense party status than women. On the other hand, women are much more likely to de-escalate to mild party status in young adulthood after experiencing a period of versatile behavior in late adolescence. While Moffitt (1993) suggests that women may be more likely to desist than men, evidence for this pattern was not found.

However, the greater likelihood for women to de-escalate to mild party behaviors in young adulthood, suggests that displacement patterns as discussed by Massoglia (2006) may have gendered processes that warrant further investigation.

While this study offers a complex and thorough test of the existence of antisocial behavior specialization, change over time, and its relationship to desistance, some limitations should be noted. First of all, the sample employed is entirely African American. While this this population is important to study concerning antisocial behavior because of disproportionate contact with the criminal justice system (Boothe, 2007), no racial comparisons in behavior are possible.

Furthermore, this sample and methodology is not generalizable. While no theoretical processes suggest that African Americans should display specialization patterns unique to their race, the findings presented here should be replicated using more diverse samples to better explore possible racial differences. Another reason for future studies to replicate these findings using more diverse samples is due to the fact that LTA is a sample based methodology and different samples may indicate different solutions (Muthén, 2012).

As the racial composition of the FACHS sample may limit the results' generalizability, the sample size also restricted the kind of gender comparisons possible. While this study does suggest gender differences in specialization and change overtime, a more extensive examination of gender differences was not possible because of the sample size.

Despite its limitations, this study greatly expands criminological understanding of antisocial behavior specialization. Predictions of the CCP and the DTT are largely supported, and clear patterns of specialization are evident. Additionally, the results of this study lay the ground work for additional research and theoretical development. For instance, not unlike Sampson and Laub's (1993) turning points to de-escalation and desistance, this study suggests that important turning points to escalation in emerging adulthood should be identified and their consequences explored.

Relatedly, the results of major specialization pathways suggest that intense and mild party behaviors share common links but differ in gender affiliation. A future study addressing other ways in

which these individuals differ could help identify risk factors for the development of potentially harmful thrill-seeking behaviors.

Lastly, the empirical and theoretical work reviewed for this dissertation demonstrates that while offending specialization is a topic that has received a great deal of attention over the years, no empirically-supported theoretic construct has been offered to specifically address specialization over the life course. This study provides needed clarity concerning specialization patterns both crossectionally and longitudinally from adolescence to young adulthood. In the future, studies that address specialization over longer periods of the life course, may contribute to the theoretic discussion of offending specialization. This kind of extended examination of specialization behavior patterns also has the potential to inform intervention and prevention programs that target specific behavior groups during key developmental stages.

REFERENCES

Abelson, R. P. (1976). Script processing in attitude formation and decision making. In J. S. Carroll and J. W. Payne (Eds.), *Cognition and Social Behavior*. Hillsdale, NJ, Lawrence Erlbaum Associates.

Agresti, A. & B. F. Agresti (1978). Statistical analysis of qualitative variation. *Sociological Methodology* 9: 204–237.

Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behaviors. In D. Albarracin, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes,* (pp. 173–222). Mahwah, NJ: Erlbaum.

Armstrong, T. (2005). Evaluating the competing assumptions of Gottfredson and Hirschi's (1990) A General Theory of Crime and Psychological Explanations of Aggression. *Western Criminology Review,* 6(1),12-21.

--- (2008a). Are trends in specialization across arrests explained by changes in specialization occurring with age? *Justice Quarterly,* 25(1), 201 - 222.

--- (2008b). Exploring the impact of changes in group composition on trends in specialization. *Crime & Delinquency,* 54(3), 366-389.

Armstrong, T. A. & C. L. Britt (2004). The effect of offender characteristics on offense specialization and escalation. *Justice Quarterly,* 21(4), 843 - 876.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist,* 55(5), 469-480.

--- (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New Directions for Child & Adolescent Development,* 2003(100), 63-76.

Arnold, B., A. Blumstein, & Farrington, D.P. (1989). A prospective test of a criminal career model. *Criminology,* 27, 373-388.

Avi-Itzhak, B. & R. Shinnar (1973). Quantitative models in crime control. *Journal of Criminal Justice,* 1(3), 185-217.

Bachman, J. G., Wadsworth, K., O'Malley, P., Johnston, L., & Schulenberg, J. (1997). *Smoking, drinking and drug use in young adulthood: The impacts of new freedoms and new responsibilities.* Mahwah, NJ: Erlbaum.

Bartlett, R., Holditch-Davis, D., & Belyea, M. (2005). Clusters of problem behaviors. *Research in Nursing & Health,* 28, 230–239.

Basen-Engquist, K., Edmundson, E. W., & Parcel, G.S. (1996). Structure of health risk behavior among high school students. *Journal of Consulting and Clinical Psychology*, 64(4), 764-775.

Baskin, D. R. & Sommers, I. B. (1998). *Casualties of community disorder: Women's careers in violent crime*. Boulder, CO, Westview.

Best, D., Gross, S., Manning, V., Gossop, M., Witton, J., & Strang, J. (2005). Cannabis use in adolescents: the impact of risk and protective factors and social functioning. *Drug & Alcohol Review*,24(6):483–488.

Belknap, J. (2007). *The invisible woman: Gender, crime, and justice*. Belmont: Tomson Wadsworth.

Biernacki, P. (1986). *Pathways from heroin addiction: Recovery without treatment.* Philadelphia, PA: Temple University Press.

Block, C. R., Blokland, A. A. J., van der Werff, C., van Os, R., & Nieuwbeerta, P. (2010). Long-term patterns of offending in women. *Feminist Criminology,* 5(1), 73-107.

Blumstein, A. & Cohen, J. (1979). Estimation of individual crime rates from arrest records. *The Journal of Criminal Law and Criminology,* 70(4), 561-585.

Blumstein, A., Cohen, J. Das, S., Moitra, S.D. (1988). Specialization and seriousness during adult criminal careers. *Journal of Quantitative Criminology*, 27, 303-345.

Blumstein, A., Cohen, J., Farrington, D.P. (1988). Criminal career research: Its value for criminology. *Criminology,* 26, 1-36.

Blumstein, A., Cohen, J., Roth, J.A., & Visher, C.A. (1986). *Criminal careers and career criminals*. Washington, DC, National Academy Press.

Boothe, D. (2007). Why are so many black men in prison? Memphis, TN: Full Surface Publishing.

Brame, R., Mulvey, E. P., & Piquero, A.R. (2001). On the development of different kinds of criminal activity. *Sociological Methods & Research,* 29(3), 319-341.

Brennan, P., Sarnoff, M., & John, R. (1989). Specialization in violence: Evidence of a criminal subgroup. *Criminology,* 27, 437-454.

Britt, C. L. (1994). Versatility. In T. Hirschi and M. Gottfredson (Eds.), *The generality of deviance*. New Brunswick, NJ, Transaction Publishers: 173-191.

---. (1996). The measurement of specialization and escalation in the criminal career: An alternative modeling strategy. *Journal of Quantitative Criminology,* 12, 193-222.

Bureau of Justice Statistics. (2008). *Prisoners in 2007.* Washington, DC: U.S. Department of Justice.

Bursik, R. J., Jr. (1980). The dynamics of specialization in juvenile offenses. *Social Forces*, 58(3), 851-864.

Bushway, S. D., Piquero, A. R., Broidy, L.M., Cauffman, E. & Mazerolle, P. (2001). An empirical framework for studying desistance as a process. *Criminology,* 39(2), 491-516.

Bushway, S. D., Thornberry, T. P., & Krohn, M.D. (2003). Desistance as a developmental process: A comparison of static and dynamic approaches. *Journal of Quantitative Criminology,* 19(2), 129.

Capaldi, D. M. & Patterson, G. R. (1996). Can violent offenders be distinguished from frequent offenders? Prediction from childhood to adolescence. *Journal of Research in Crime and Delinquency,* 33, 206-231.

Carbond-Lopez, K., Rennison, C.M., Macmillan, R.. (2011). Experiences of intimate partner violence across the life course. *Journal of Quantitative Criminology,* 28:319-346.

Caspi, A. & Bem, D. (1990). *Personality continuity and change across the life course. Handbook of Personality: Theory and Research*. L. A. Pervin. New York, Guilford: 549-575.

Caspi, A., Lynam, D., Moffitt, T.E, & Silva, P.A. (1993). Unraveling girls' delinquency: Biological, dispositional, and contextual contributions to adolescent misbehavior. *Developmental Psychology,* 29(1), 19-30.

Caspi, A. & Moffit, T. E. (1991). The Continuity of maladaptive behavior: From description to understanding in the study of antisocial behavior. In D. Cicchetti and D. J. Cohen (Eds.), *Manual of developmental psychopathology*. New York: Wiley.

Chassin, L., Pitts, S.C., & Prost, J. (2002). Binge drinking trajectories from adolescence to emerging adulthood in a high-risk sample: Predictors and substance abuse outcomes. *Journal of Consulting and Clinical Psychology*, 70(1), 67-78.

Catalano, R. F. & Hawkins, J. D. (1996). The Social development model: A theory of antisocial behavior. In D. Hawkins (Ed.), *Delinquency and crime: Current theories*. Cambridge: Cambridge University Press.

Celeux, G. & Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification*, 13, 195-212.

Chen, G. & Åstebro, T. (2003). How to deal with missing categorical data: Test of a simple Bayesian method. *Organizational Research Methods*, 6(3), 309-327.

Chen, X., J. Unger, B., Palmer, P., Welner, M.D., Anderson, J., Wong, M.M., & Austin, G. (2002). Prior cigarette smoking initiation predicting current alcohol use: Evidence for a gateway drug effect among California adolescents from eleven ethnic groups. *Addictive Behaviors*, 27(5), 799-817.

Chung, H., Park, Y., & Lanza, S.T.2005). Latent transition analysis with covariates: pubertal timing and substance use behaviors in adolescent females. *Statistics in Medicine*, 24(18), 2895-2910.

Cicchetti, D. & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development of Psychopathology*, 8, 597-600.

Clarke, R. V. & Cornish, D. (1985). Modeling offenders' decisions: A framework for research and policy. In M. Tonry and N. Morris (Eds.), *Crime and justice: An annual review of research.* Chicago: University of Chicago Press.

Cloward, R. & Ohlin, L. (1960). *Delinquency and Opportunity: A Theory of Delinquent Gangs*. New York: Free Press.

Cohen, J. (1986). Research on criminal careers: Individuals frequency rates and offense seriousness. In A. Blumstein, J. Cohen, J. A. Roth and C. A. Visher (Eds.), *Criminal careers and career criminals*. Washington, DC: National Academy Press, 292–418.

Collins, L.M. (2006). Analysis of longitudinal data: The integration of theoretical model, temporal design and statistical model. *Annual Review of Psychology*, 57, 505-528.

Collins, L. M. & Wugalter, S. E. (1992). Latent class models for stage-sequential dynamic latent variables. *Multivariate Behavioral Research,* 27(1), 131.

Colvin, M. & Pauly, J. (1983). A critique of criminology: Toward an integrated structural-Marxist theory of delinquency production. *American Journal of Sociology*, 89(3), 513-551.

Cornish, D. & Clarke, R. V. (1986). *Crime as a rational choice. The reasoning criminal.* New York: Sringer-Verlag.

Crowder, K. D. & Tolnay, S. E. (2000). A new marriage squeeze for black women: The role of racial intermarriage by black men. *Journal of Marriage and Family*, 62(3), 792-807.

Crutchfield, R. D. & Pitchford, S. R. (1997). Work and crime: The effects of labor stratification." *Social Forces,* 76(1), 93-118.

Deane, G., Armstrong, D. P., & Felson, R.B. (2005). An examination of offense specialization using marginal logit models. *Criminology,* 43(4), 955-988.

DeLisi , M. (2005). *Career Criminals in Society.* Thousand Oaks, CA: Sage Publications.

Dodge, K. A., Price, J.M., Bachorowski, J., & Newman, J.P. (1990). Hostile attributional biases in severely aggressive adolescents. *Journal of Abnormal Psychology,* 99(4), 385-392.

Doherty, E. E. (2006). Self-control, social bonds, and desistance: A test of life course interdependence. *Criminology,* 44(4), 807-833.

Donnellan, B. M., Ge, X., & Wenk, E. (2002). Personality characteristics of juvenile offenders: differences in the CPI by age at first arrest and frequency of offending. *Personality and Individual Differences,* 33(5), 727-740.

Donovan, J. E. & Jessor, R. (1985). Structure of problem behavior in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology,* 55, 890-904.

Donovan, J. E., Jessor, R., & Costa, F.M. (1988). Syndrome of problem behavior in adolescence: A replication. *Journal of Consulting and Clinical Psychology,* 56, 762-765.

Durham, A. (1988). Ivy league delinquency: A self-report analysis. *American Journal of Criminal Justice*, 12(2), 167– 197.

Eggleston, E. P. & Laub, J. H. (2002). The onset of adult offending: A neglected dimension of the criminal career. *Journal of Criminal Justice,* 30(6), 603-622.

Elander, J., Rutter, M, Simonoff, E., Pickles, A. (2000). Explanations for Apparent Late Onset Criminality in a High-Risk Sample of Children Followed up in Adult Life. *British Journal of Criminology*, 40(3), 497-509.

Elder, G. H., Jr. (1998). The life course as developmental theory. *Child Development,* 69(1), 1-12.

---. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly,* 57(1), 4-15.

Everitt, B. S., Landau, S., Leese, M., & Stahl, D. (2001). *Cluster analysis*. New York, Oxford University Press.

Fagan, A. A. & Western, J. (2005). Escalation and deceleration of offending Behaviors from adolescence to early adulthood. *Australian & New Zealand Journal of Criminology* (Australian Academic Press), 38(1), 59-76.

Farrell, A. D., Kung, E. M., White, K.S., & Valois, R.F. (2000). The structure of self-reported aggression, drug use, and delinquent behavior during early adolescence. *Journal of Clinical Child Psychology, Crime & Law*, 29, 282–293.

Farrington, D. P. (1979). *Longitudinal research on crime and Delinquency. Crime and justice: An annual review of research*. N. Morris and M. Tonry (Eds.). Chicago: University of Chicago Press.

---. (1986). Age and crime. In M. Tonry and N. Morris (Eds.), *Crime and justice: An annual review of research*. Chicago: University of Chicago Press.

---. (1989). Later adult life outcomes of offenders and non-offenders. In M. Brambring, F. Lo¨sel and H. Skowronek (Eds.), *Children at risk: Assessment, longitudinal research, and intervention*. Berlin: De Gruyter: 220–244.

---. (1991). Antisocial personality from childhood to adulthood. *The Psychologist,* 4, 389-394.

---. (1997). Human development and criminal careers. In M. Maguire, R. Morgan and R. Reiner (Eds.), *The Oxford Handbook of Criminology*. Oxford: Clarendon Press.

---. (1999). A criminological research agenda for the next millennium. *International Journal of Offender Therapy and Comparative Criminology,* 43(2), 154-167.

---. (2003). Developmental and life course criminology: Key theoretical and empirical issues – The 2002Sutherland Award Address. *Criminology,* 41(2), 221-225.

Farrington, D. P., Loeber, R., Elliott, D.S., Hawkins, J.D., Kandel, D., Klein, M.W., McCord, J., Rowe, D.C., & Tremblay, R.E. (1990). Advancing knowledge about the onset of delinquency and crime. In B. B. Lahey and A. E. Kazdin (Eds.), *Advances in clinical child psychology.* New York: Plenum Press.

Farrington, D. P., Snyder, H. N., & Finnegan, T.A. (1988). Specialization in juvenile court careers. *Criminology,* 26, 461-488.

Farrington, D. P. & West, D. J. (1993). Criminal, penal, and life histories of chronic offenders: Risk and protective factors and early identification. *Criminal Behavior and Mental Health*, 3: 492-523.

Feagin, J.R. (2000). *Racist America.* New York, Routledge.

Felson, M. (1994). *Crime and everyday life: Insights and implications for society*. Thousand Oaks, CA, Pine Forge Press.

Fergusson, D. M., Boden, J. M., & Horwood, J. (2006). Cannabis use and other illicit drug use: testing the cannabis gateway hypothesis. *Addiction,* 101(4), 556-569.

Flaherty, B.P. (2007) Examining contingent discrete change over time with associative latent transition analysis in G.R. Hancock & K.M. Samuelson (Eds.), *Advances in latent variable mixture models* (pp. 77-103). Charlotte, NC: Information Age Publishing.

Forgas, J. P. (1979). *Social episodes: The study of interaction routines*. London: Academic Press.

Francis, B. (2012). What is Latent Class Analysis? ESRC National Center for Research Methods. Retrieved from http://www.ccsr.ac.uk/methods/festival/programme/wiwp/francis.pdf.

Francis , B., Soothill, K., & Fligelstone, R. (2004). Identifying patterns and pathways of offending behavior: A new approach to typologies of crime. *European Journal of Criminology,* 1, 48 – 87.

Gibbons, D. C. (1975). Offender typologies: Two decades later. *British Journal of Criminology,* 15, 140-156.

Gibbons, D. C. (1988). Some critical observations on criminal types and criminal careers. *Criminal Justice and Behavior,* 15, 8-23.

Gillmore, M. R., Hawkins, D. J., Catalano, R.F., Day, L., Edward,L., Moore, M., Abbott, R (1991). Structure of problem behaviors in preadolescence. *Journal of Consulting and Clinical Psychology*, *Crime & Law,* 59, 499-506.

Ginzler, A. J., Cochran, B. N., Domenech-Rodriguez, M., Cauce, A.M., & Whitbeck, L.B. (2003). Sequential progression of substance use among homeless youth: An empirical investigation of the gateway theory. *Substance Use & Misuse,* 38(3-6), 725.

Giordano, P. C., Cernkovich, S. A., & Rudolph, J.L. (2002). Gender, crime, and desistance: Toward a theory of cognitive transformation. *American Journal of Sociology,* 107(4), 990-1064.

Glaser, D. (1972). *Adult crime and social policy*. Englewood Cliffs, NJ: Prentice-Hall.

Glueck, S. & Glueck, E. (1930). *500 Criminal Careers*. New York: Knopf.

Golub, A. & Johnson, B. D. (2002). The misuse of the 'Gateway Theory' in US policy on drug abuse control: A secondary analysis of the muddled deduction. *International Journal of Drug Policy,* 13(1), 5-19.

Goodman L.A. (1974) Exploratory latent structure analysis using both identifiable and unidentifiable models. *Biometrika*, 61, 215-231.

Gomez-Smith, Z. & Piquero, A. R. (2005). An examination of adult onset offending. *Journal of Criminal Justice,* 33(6), 515-525.

Gottfredson, M. & Hirschi, T. (1986). True value of lambda would appear to be zero: An essay on career criminals, criminal careers, selective incapacitation, cohort studies, and related topics. *Criminology*, 24(213), 213-234.

----. (1988). Science, public policy, and the career paradigm. *Criminology*, 26(37), 37 - 56.

---. (1990). *A General Theory of Crime*. Stanford, CA: Stanford University Press.

Gould, S. J. (1996). *The mismeasure of man*. New York: Norton.

Graham, J. & Bowling, B. (1995). *Young people and crime* (Home Office Research Study No.145). London: Home Office.

Greenberg, D. F. (1991). Modeling criminal careers. *Criminology*, 29(17), 17-46.

Griffin, M. L. & Armstrong, G. S. (2003). The effect of local life circumstances on female probationers' offending. *Justice Quarterly*, 20, 213–239.

Guerette, R. T., Stenius, V. M. K., & McGloin, J.M. (2005). Understanding offense specialization and versatility: A reapplication of the rational choice perspective. *Journal of Criminal Justice*, 33(1): 77-87.

Hagenaars, J. A. (1988). Latent structure models with direct effects between indicators: Local dependence models. *Sociological Methods & Research*, 16, 379–405.

Hayduk, L. A. (1987). *Structural equation modeling with LISREL*. Baltimore: Johns Hopkins.

Hicks, B. M., Blonigen, D. M., Kramer, M. D., Krueger, R. F., Patrick, C. J., Iacono, W. G., et al. (2007). Gender differences and developmental change in externalizing disorders from late adolescence to early adulthood: A longitudinal twin study. *Journal of Abnormal Psychology*, 116, 433–447.

Hindelang, M. J. (1971). Age, sex, and the versatility of delinquent involvements. *Social Problems*, 18(4), 522-535.

Hirschi, T. & Gottfredson, M. R. (1983). Age and the explanation of crime. *American Journal of Sociology*, 89, 552–584.

Holland, T. R. & McGarvey, B. (1984). Crime specialization, seriousness progression, and Markov chains. *Journal of Consulting and Clinical Psychology*, 52(5), 837-840.

Horney, J., Osgood, D. W., & Marshall, I.H. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review*, 60(5), 655-673.

Hussong, A. M., & Chassin, L. (2004). Stress and coping among children of alcoholic parents through the young adult transition. *Development and Psychopathology*, 16, 985–1006.

Jessor, R. & Jessor, S. L. (1977). *Problem behavior and psychosocial development: Longitudinal study of youth.* New York: Academic Press.

Johnson, P. B., Boles, S. M., & Klieber, H.D. (2000). The relationship between adolescent smoking and drinking and likelihood estimates of illicit drug use. *Journal of Addictive Diseases,* 19(2), 75-81.

Johnson, R. A., Su, S.S., Gerstein, D.R., Shin, H., & Hoffman, J.P. (1995). Parental influences on deviant behavior in early adolescence: A longitudinal response analysis of age-and gender-differentiated effects. *Journal of Quantitative Criminology*, 11, 167-193.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). Monitoring the Future National Survey Results on Drug Use, 1975–2008. *Volume II: College students & adults ages 19–50*. (NIH Publication No. 09-7403). Bethesda, MD: National Institute on Drug Abuse.

Kandel, D., Kessler, R., &Marguelis, R. (1978). Antecedents to adolescent initiation to drug use: A developmental analysis. *Journal of Youth &Adolescence*, 7(1):13–40.

Kelley, B. M., Denny, G., &Young, M. (1999). Modified stages of acquisition of gateway drug use: a primary prevention application of the stages of change model. *Journal of Drug Education*, 29(3), 189-203.

Kelley, B. T., Loeber, R., Kate, K., & DeLamatre, M. (1997). Developmental pathways in boys' disruptive and delinquent behavior. *Juvenile Justice Bulletin*.

Keltner, D. (2009). *Born to be Good.* New York: W.W. Norton.

Kempf, K. L. (1986). Offense specialization: Does it exist? In Cornish and R. Clarke (Eds.), *The reasoning criminal: Rational choice perspectives on offending*. New York: Springer-Verlag.

---. (1987). Specialization and the criminal career. *Criminology*, 25, 399-420.

King, K. M., & Chassin, L. (2007). A prospective study of the effects of age of initiation of alcohol and drug use on young adult substance dependence. *Journal of Studies on Alcohol and Drugs*, 68, 256–265.

King, R. D., Massoglia, M., & MacMillan, R. (2007). The context of marriage and crime: Gender, the propensity to marry, and offending in early adulthood. *Criminology*, 45(1), 33-65.

King, R. D. & South, S. J. (2011). Crime, race, and the transition to marriage. *Journal of Family Issues*, 32(1), 99-126.

Klein, M. (1984). Offence specialization and versatility among juveniles. *British Journal of Criminology,* 24(2), 185–194.

Kratzer, L. & Hodgins, S. (1999). A typology of offenders: A test of Moffitt's theory among males and females from childhood to age 30. *Criminal Behavior and Mental Health*, 9, 57– 73.

Kruttschnitt, C., R. Gartner, & Ferraro, K. (2002). Women's involvement in serious interpersonal violence. *Aggression and Violent Behavior,* 7(6), 529-565.

Lagrange, T. C. & Silverman, R. A. (1999). Low self-control and opportunity: Testing the general theory of crime as an explanation for gender differences in delinquency. *Criminology,* 37(1), 41-72.

Lanza, S.T., Patrick, M.E., Maggs, J.L. (2010). Latent transition analysis: Benefits of a latent variable approach to modeling transitions in substance use. *Journal of Drug Issues*, 40(1), 93-120.

Latkin, C.A., Knowlton, A.R., Hoover, D., & Mandell, W. (1999). Drug network characteristics as a predictor of cessation of drug use among adult injection drug users: a prospective study. *American Journal of Drug and Alcohol Abuse*, 25(3):463–473.

Latkin, C., Mandell, W., Oziemkowska, M., Celentano, D., Vlahov, D., Ensminger, M., & Knowlton, A. (1995). Using social network analysis to study patterns of drug use among urban drug users at high risk for HIV/ AIDS. *Drug & Alcohol Dependence*, 38:1–9.

Lattimore, P. K., Visher, C., & Linster, R.L. (1994). Specialization in juvenile careers. *British Journal of Criminology*, 24, 185-181 194.

Laub, J. H., Nagin, D. S., & Sampson, R.J. (1998). Good marriages and trajectories of change in criminal offending. *American Sociological Review*, 63, 225-238.

Laub, J. H. & Sampson, R. J. (2003). *Shared beginnings, divergent lives*. Cambridge: Harvard University Press.

Lazarsfeld, P.F.& Henry, N.W. (1968). *Latent structure analysis*. Boston, MA: Houghton Mifflin.

LeBel, T.P., Burnett, R., Maruna, S., & Bushway, S. (2004). Social factors in desistance and crime. *European Journal of Criminology*, 5(2), 131-159.

Le Blanc, M. (2002). The offending cycle, escalation and de-escalation in delinquent behavior: A challenge for criminology. International Journal of Comparative and Applied Criminal Justice, 26(1), 53-83.

---. & Bouthillier, C. (2003). A developmental test of the general deviance syndrome with adjudicated girls and boys using hierarchical confirmatory factor analysis. *Criminal Behavior and Mental Health*, 13(2), 81-105.

---. & Frechette, M. (1989). *Male criminal activity from childhood through youth: Multilevel and developmental perspectives*. New York: Springer.

---. & Loeber, R. (1998). Developmental criminology updated. In M. Tonry (Eds), *Crime and justice: An annual review of research* Chicago: Chicago University Press.

---.. (1997). A generic control theory of the criminal phenomenon: The structural and dynamic statements of an integrative multilayered control theory. In T. P. Thornberry (Ed.), *Developmental Theories of Crime and Delinquency*. (Advances in Criminological Theory, Vo1.7.) New Brunswick, N.J: Transaction.

---. Cote, G., & Loeber, R. (1991). Temporal paths in delinquency: Stability, regression, and progression analyzed with panel data from an adolescent and a delinquent male sample. *Canadian Journal of Criminology* 33(23), 23-45.

Leonore M.J, S. (1997). "Do criminal offenders specialize in crime types?" Applied and Preventive Psychology 6(1): 35-53.

Leverentz, A. M. (2006). The love of a good man? Romantic relationships as a source of support or hindrance for female ex-offenders. *Journal of Research in Crime and Delinquency*, 43(4): 459-488.

Loeber, R. & Farrington, D. P. (1998). *Serious and violent juvenile offenders: Risk factors and successful interventions*. Newbury Park: Sage.

Loeber, R. & LeBlanc, M. (1990). Toward a developmental criminology. In M. Tonry and N. Morris (Eds.), *Crime and Justice: Review of Research (pages* 375–473). Chicago, IL: University of Chicago Press.

Loeber, R. & Snyder, H. N. (1990). Rate of offending in juvenile careers: Findings of constancy and change in lambda. *Criminology,* 28(97).

Loeber, R. & Stouthamer-Loeber, M. (1998). Development of juvenile aggression and violence: Some common misconceptions and controversies. *American Psychologist,* 53(2), 242-259.

Loeber, R. & Waller, D. (1988). Artifacts in delinquency specialization and generalization studies. *British Journal of Criminology,* 28, 461–477.

Loeher, R. (1996). Developmental continuity, change, and pathways in male juvenile problem behaviors and delinquency. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories (*pages1-27*).* Cambridge, UK: Cambridge University Press.

Lombroso, C. (2006). *The Criminal Man*. Durham, NC: Duke University press.

Losel, F. & Bender, D. (2003). Protective factors and resilience. In D. P. Farrington and J. W. Coid (Ed.), *Early Prevention of Adult Antisocial Behavior*. Cambridge University Press.

Lussier, P. (2005). The Criminal activity of sexual offenders in adulthood: Revisiting the specialization debate. *Sexual Abuse: A Journal of Research and Treatment*, 17(3), 269-292.

Lussier, P., LeBlanc, M., & Proulx, J. (2005). The generality of criminal behavior. A confirmatory factor analysis of the criminal activity of sex offenders in adulthood. *Journal of Criminal Justice,* 33, 177-189.

Lynam, D. R., Piquero, A. R., & Moffitt, T.E.. (2004). Specialization and the propensity to violence. *Journal of Contemporary Criminal Justice,* 20(2), 215-228.

MacCallum, R. (1986). Specification searches in covariance structure modeling. *Psychological Bulletin,* 100, 107-120.

Macy, R.J. (2008). A research agenda for sexual revictimization: Priority areas and innovative statistical methods. *Violence Against Women,* 14, 1128-1147.

Marc, L. (1996). Changing patterns in the perpetration of offenses over time: Trajectories from early adolescence to the early 30s. *Studies on Crime and Crime Prevention,* 5, 151-165.

Maruna, S. (2001). *Making good: How ex-convicts reform and rebuild their lives*. Washington DC: American Psychological Association.

Maruna, S. & Farrall, S. (2004). Desistance from crime: A theoretical reformulation. *Ko¨lner Zeitschrift fu¨ r Soziologie und Sozialpsychologie*, 43, 171-194.

Mata, A.D. and van Dulman, M.H.M. (2011) Adult-onset antosicial behavior trajectories: Associations with adolescent family processes and emerging adulthood functioning. *Journal of Interpersonal Violence*, 27(1), 177-1193.

Massoglia, M. (2006). Desistance or displacement? The changing patterns of offending from adolescence to young adulthood. *Journal of Quantitative Criminology*, 22(3), 215-239.

Massoglia, M. & Uggen, C. (2010). Settling down and aging out: Toward an interactionist theory of desistance and the transition to adulthood. *American Journal of Sociology,* 116(2), 543-582.

Mazerolle, P., Brame, R., Paternoster, R., & Piquero, A. (2000). Onset, age, persistence, and offending versatility Comparisons across gender. *Criminology,* 38(4), 1143-1172.

McCord, J. (1978). A thirty-year follow-up of treatment effects. *American Psychologist,* 33(3), 284-289.

McCord, J. & Conway, K. (2002). Patterns of juvenile delinquency and co-offending. In E. Waring and D. Weisburd (Eds.), *Advances in Criminological Theory*. New Brunswick, N.J.: Transaction.

McGee, T. R. & Farrington, D. P. (2010). Are there any true adult-onset offenders? *British Journal of Criminology,* 50(3), 530-549.

McGloin, J. M. & Piquero, A. R. (2010). On the relationship between co-offending network redundancy and offending versatility. *Journal of Research in Crime and Delinquency*, 47(1), 63-90.

McGloin, J. M., Sullivan, C. J., & Piquero, A.R. (2009). Aggregating to versatility? *British Journal of Criminology*, 49(2), 243-264.

McGloin, J. M., Sullivan, C. J., Piquero, A.R. (2007). Local life circumstances and offending specialization/versatility. *Journal of Research in Crime and Delinquency*, 44(3), 321-346.

Miethe, T. D. & McCorkel, R. C. (2006). *Crime profiles: The anatomy of dangerous persons, places, and situations*. Los Angeles: Roxbury Publishing Company.

Miethe, T. D., Olson, J., & Mitchell, O. (2006). Specialization and persistence in the arrest histories of sex offenders. *Journal of Research in Crime and Delinquency*, 43(3), 204-229.

Moffit, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100(4), 674-701.

---. (1994). Natural histories of delinquency. In E. Wetekamp and H. Kerner (Eds.) *Cross-national research on human development and criminal behavior*. Netherlands: Kluwer Academic Publishers.

---. (2003). Life-course persistent and adolescence-limited antisocial behavior: A 10- year research review and a research agenda. In B. B. Lahey, T. E. Moffitt and A. Caspi (Eds.) *Causes of conduct disorder and juvenile delinquency*. New York: Guilford.

----. (2006). Life-course-persistent versus adolescence-limited antisocial behavior. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Vol 3. Risk, disorder and adaptation* (2nd ed., pp. 570-598). Hoboken, NJ: Wiley.

Moffit, T. E. & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology*, 13(02), 355-375.

Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P.A. (2001). *Sex differences in antisocial behavior: Conduct disorder, delinquency, and violence in the Dunedin Longitudinal Study*. Cambridge: Cambridge University Press.

Morris, A. & Giller, H. (1987). *Understanding juvenile justice*. London: Croom Helm.

Muthén, B.O. (2001). Latent variable mixture modeling. In G.A. Marcoulides & R.E. Schumacker (Eds.), *New developments and techniques in structural equation modeling* (pp. 1–33). Mahwah, NJ: Lawrence Erlbaum.

----. (2002). Beyond SEM: General latent variable modeling. *Behaviormetrika,* 29: 81-117.

----. & Muthén, B. O. (2000). Integrating person-centered and variable-centered analysis: Growth mixture modeling with latent trajectory classes. *Alcoholism: clinical and Experimental Research,* 24, 882-892.

----. (2002). How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling,* 9, 599-620.

----. (2011). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén

----. (2012). *Mplus User's Guide. Seventh Edition*. Los Angeles, CA: Muthén & Muthén.

Nagin, D. & Paternoster, R. (2000). Population heterogeneity and state dependence: State of the evidence and directions for future research. *Journal of Quantitative Criminology*, 16(2), 117-144.

Nagin, D. & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development,* 70(5), 1181-1196.

Nagin, D. S. (1999). Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods,* 4, 139–157.

---. (2005). *Group-based modeling of development*. Cambridge, MA: Harvard University Press.

Nagin, D. S. & Farrington, D. P. (1992). Stability of criminal potential from childhood to adulthood. *Criminology,* 30.

Nagin, D. S. & Land, K. C. (1993). Age, criminal careers, and population heterogeneity: specification and estimation of a nonparametric, mixed poisson model. *Criminology*, 31, 327-359.

Nagin, D. S. & Paternoster, R. (1991). On the relationship of past to future participation in delinquency. *Criminology*, 29, 163-190.

Nagin, D. S. & Tremblay, R. E. (2001). Analyzing developmental trajectories of distinct but related behaviors: A group-based method. *Psychological Methods*, 6(1), 18-34.

Neely-Barnes, S. (2010). Latent class models in social work. *Social Work Research*, 34, 114–121.

Nielsen, L. A. (1999). Testing Sampson and Laub's life course theory: age, race/ethnicity, and drunkenness. *Deviant Behavior*, 20(2), 129-151.

Nikulina, V., Widom, C.S., Czaja, S. (2011). The role of childhood neglect and childhood poverty in predicting mental health, academic achievement, and crime in adulthood. American *Journal of Community Psychology*, 48, 309-321.

Nylund, K.A., Muthe´n, B.O., Bellmore, A., & Graham, S. (2006). Stability and instability of peer victimization during middle school: Using latent transition analysis with covariates, distal outcomes, and modeling extensions. Retrieved from www.statmodel.com/download/LTA_DP_FINAL.pdf

Osgood, D. W., Johnston, L. D., & O'Malley, P.M.(1988). The generality of deviance in late adolescence and early adulthood. *American Sociological Review*, 53(1), 81-93.

Osgood, D. W. & Schreck, C. J. (2007). A new method for studying the extent, stability, and predictions or individual specialization in violence. *Criminology*, 45(2), 273-312.

Parkinson, P. N., Shrimpton, S., Oates, R.K., Swanston, H.Y., & O'Toole, B.I. (2004). Nonsex offenses committed by child-molesters: Findings from a longitudinal study. *International Journal of Offender Therapy and Comparative Criminology*, 48, 28-39.

Paternoster, R., R. Brame, Piquero, A., Mazerolle, & Deane, C.W. (1998). The forward specialization coefficient: Distributional properties and subgroup differences. *Journal of Quantitative Criminology*, 14(2), 133-154.

Paternoster, R. & Iovanni, L. (1989). The labeling perspective and delinquency: An elaboration of the theory and an assessment of the evidence. *Justice Quarterly*, 6.

Penn State Methodology Center. 2012. LTA and LCA FAQ. Retrieved from http://methodology.psu.edu/ra/lca/faq#t22n102.

Piquero, A. (2000). Frequency, specialization, and violence in offending careers. *Journal of Research in Crime and Delinquency*, 37(4), 392-418.

---. (2008). Taking stock of developmental trajectories of criminal activity over the life-course. A. Liberman (Ed.). *The long view of crime: A synthesis of longitudinal research*. New York: Springer.

Piquero, A., & Farrington, D. P. (2003). The criminal career paradigm. M. Tonry (Ed.). *Crime and justice: A review of research*. Chicago: University of Chicago Press.

Piquero, A., Oster, R. P., Mazerolle, P., Brame, R. & Dean, C.W. (1999). Onset age and offense specialization. *Journal of Research in Crime and Delinquency*, 36(3), 275-299.

Piquero, A. R., R. Brame, Fagan, J., & Moffitt, T.E. (2006). Assessing the offending activity of criminal domestic violence suspects: Offense specialization, escalation, and de-escalation evidence from the spouse assault replication program. *Public Health Reports*, 121(4), 409-418.

Piquero, A. R., Brame, R., Mazerolle, P. & Haapanen, R. (2002). Crime in emerging adulthood. *Criminology*, 40, 137-170.

Piquero, A. R. & Mazerolle, P. (2001). *Life-course criminology: Contemporary and classic readings.* Belmont, CA: Wadsworth.

Reboussin, B.A., Reboussin, D,M., Liang, K.Y., & Anthony, J.C. (1998). Latent transition modeling of the progression of health-risk behavior. *Multivariate Behavioral Research*, 33, 457–478.

Reinke, W., Herman, K., Petras, H., & Ialongo, N.S. (2008). Empirically derived subtypes of child academic and behavior problems: Co-occurrence and distal outcomes. *Journal of Abnormal Child Psychology*, 36(5), 759-770.

Reinecke, J. (2006). Longitudinal analysis of adolescents' deviant and delinquent behavior. *Methodology*, 2, 100– 112.

Reiss, A. J., Jr. & Farrington, D. P. (1991). Advancing knowledge about co-offending: Results from a prospective longitudinal survey of London males. *The Journal of Criminal Law and Criminology,* 82(2), 360-395.

Rindskopf, D. (2010). Latent transitional analysis. In G. Hancock and R. O. Mueller (Eds.), *The reviewer's guide to quantitative methods in the social sciences.* New York: Routledge

Robins, L. (1966). *Deviant children grow up: A sociological and psychiatric study of sociopathic personality.* Baltimore: Williams & Wilkins.

Rojek, D. G. & Erickson, M. L. (1982). Delinquent careers - A test of the career escalation model. *Criminology,* 20, 5-28.

Rosenbaum, M. (1981). *Women on heroin*. New Brunswick, NJ: Rutgers University Press.

Rowe, D. C. & Flannery, D. J. (1994). An examination of environmental and trait influences on adolescent delinquency. *Journal of Research in Crime and Delinquency,* 31, 374-389.

Rumgay, J. (2004). Scripts for safer survival: Pathways out of female crime. *The Howard Journal of Criminal Justice,* 43(4), 405-419.

Salfati, C. G. P. (2000). The nature of expressiveness and instrumentality in homicide. *Homicide Studies,* 4(3), 265-293.

---. (2006). Differentiating sexual violence: A comparison of sexual homicide and rape. *Psychology, Crime & Law,* 12(2), 107-125.

Sample, L. L. & Bray, T. M. (2003). Are sex offenders dangerous? *Criminology and Public Policy,* 3(1), 59-62.

Sampson, R. J. & Laub, J. H. (1992). Crime and deviance in the life course. *Annual Review of Sociology,* 18(1), 63-84.

---. (1993). Crime in the making: Pathways and turning points through life. Cambridge, MA: Harvard University Press.

---. (2003). Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology,* 41(3), 555-592.

Schreck, C. J., Stewart, E. A., & Osgood, D.W. (2008). A reappraisal of the overlap of violent offenders and victims. *Criminology,* 46(4), 871-906.

Schwaner, S. L. (1998). Patterns of violent specialization: Predictors of recidivism for a cohort of parolees. *American Journal of Criminal Justice,* 23(1), 1-17.

Shadd, M. (1998). *Redeeming one's self: How reformed ex-offenders make sense of their lives*. Evanston, Ill:Northwestern University.

Shaffer, D., P. Fisher, et al. (1993). The diagnostic interview schedule for children, (DISC-R). I. Preparation, field testing, inter-rater reliability and acceptability. *Journal of the American Academy of Child and Adolescent Psychiatry,* 32, 643–650.

Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology,* 26, 667-692.

Shapiro, T. (2004). *The hidden cost of being African American: How wealth perpetuates inequality*. New York: Oxford University Press.

Shover, N. (1985). *Aging criminals*. Beverley Hills, CA: Sage.

---. (1996). *Great pretenders: Pursuits and careers of persistent thieves*. Boulder, CO: Westview.

Simon, L. M. J. (1997). Do criminal offenders specialize in crime types? *Applied and Preventive Psychology,* 6(1), 35-53.

Simons, R. L., Lei, M.K., Beach, S.R.H., Brody, G.H., Philibert, R.A., & Gibbons, F.X. (2011). Social environmental variation, plasticity genes, and aggression: Evidence for the differential susceptibility hypothesis. *American Sociological Review,* 76(6), 883-912.

Simons, R. L., Lei, M.K., Stewart, E.A., Beach, S.R.H., Brody, G.H., Philibert, R.A., & Gibbons, F.X. (2012). Social adversity, genetic variation, street code, and aggression: A genetically informed model of violent behavior. *Youth Violence and Juvenile Justice,* 10(1), 3-24.

Smith, D. A. & Visher, C. A. (1980). Sex and involvement in deviance/crime: A quantitative review of the empirical literature. *American Sociological Review,* 45(4), 691-701.

Sommers, I., Baskin, D.R. & Fagan, J.(1994). Getting out of the life: crime desistance by female street offenders. *Deviant Behavior,* 15, 125-129.

Soothill, K., Francis, B., Ackerley, E., & Humphreys, L. (2008). Changing patterns of offending behavior among young adults. *The British Journal of Criminology,* 48(1), 75-75.

Stander, J., Farrington, D. P., Hill, G., & Altham, P.M.E. (1989). Markov chain analysis and specialization in criminal careers. *British Journal of Criminology,* 29, 317- 335.

Stattin, H., Magnusson, D., & Reichel, H. (1989). Criminal activity at different ages: A study based on a swedish longitudinal research population. *British Journal of Criminology,* 29.

Steffensmeier , D. (1993). National trends in female arrests, 1960-1990: Assessment and recommendations for research. *Journal of Quantitative Criminology*, 9, 413-441.

Steffensmeier, D. & Allan, E. (1996). Gender and crime: Toward a gendered theory of female offending. *Annual Review of Sociology*, 22(1), 459.

Steffensmeier , D. & Ulmer, J. T. (2005). *Confessions of a dying thief: Understanding criminal careers and criminal enterprise.* New Brunswick, NJ:Transaction Aldine.

Sullivan, C., McGloin, J., Ray, J.V., & Caudy, M.S. (2009). Detecting specialization in offending: Comparing analytic approaches. *Journal of Quantitative Criminology*, 25(4), 419-441.

Sullivan, C. J., Childs, K. K., & O'Connell, D. (2010). Adolescent risk behavior subgroups: An empirical assessment. *Journal of Youth and Adolescence,* 39(5), 541-562.

Sullivan, C. J., McGloin, J. M., Pratt, T.C., & Piquero, A.R. (2006). Rethinking the "norm" of offender generality: Investigation specialization in the short term. *Criminology*, 44(1), 199-233.

Thompson, A.M., Macy, R. J., Fraser, M.W. (2011). Assessing person-centered outcomes in practice research: A latent transition profile framework. *Journal of Community Psychology*, 38, 987-1002.

Thornberry, T. P. (2005). Explaining Multiple Patterns of Offending across the Life Course and across Generations. *The ANNALS of the American Academy of Political and Social Science,* 602(1), 156-195.

Thornberry, T. P. & Krohn, M. D. (2005). Applying interactional theory to the explanation of continuity and change in antisocial behavior. In D. P. Farrington (Ed.), *Integrated Developmental and Life-Course Theories of Offending* (p.p. 183-209). New Brunswick, NJ: Transaction Publishers.

Tolan, P. H., Guerra, N. G., & Kendall, P.C. (1995). Introduction to special section: Prediction and prevention of antisocial behavior in children and adolescents. *Journal of Consulting and Clinical Psychology,* 63(4), 515-517.

Tracy, P. E., Wolfgang, M. E., & Figlio, R.M. (1990). *Delinquency Careers in Two Birth Cohorts*. New York: Plenum.

Tremblay, R. E. & Craig, W. M. (1995). Developmental crime prevention. Building a safer society: Strategic approaches to crime prevention M. Tonry and D. P. Farrington (Eds.), *Crime and justice, and annual review of research*. Chicago: University of Chicago Press.

Trojan, C. & Salfati, C. G. (2010). A multidimensional analysis of criminal specialization among single-victim and serial homicide offenders. *Homicide Studies* 14(2), 107-131.

Uggen, C. & Kruttschnitt, C. (1998). Crime in the breaking: Gender differences in desistance. *Law & Society Review,* 32(2), 339-366.

Velicer, W.F., Martin, R.A., & Collins, L.M. (1996). Latent transition analysis for longitudinal data. *Addiction*, 91, 197–209.

Waldorf, D., Reinarman, C., & Murphy, S. et al. (1991). *Cocaine changes: The experience of using and quitting*. Philadelphia, PA: Temple University Press.

Warr, M. (1998). Life-course transitions and desistance from crime. *Criminology*, 36, 1183-1216.

Werner, H. (1948). *Comparative psychology of mental development*. New York: International Universities Press.

White HR, McMorris BJ, Catalano RF, Fleming CB, Hagerty KP, Abbott RD. (2006). Increases in alcohol and marijuana use during the transition out of high school into emerging adulthood: The effects of leaving home, going to college, and high school protective factors. *Journal of Studies on Alcohol and Drugs*, 67:810–822.

Williams, R. K. & Arnold, B. L. (2002). Offense specialization among serious habitual juvenile offenders in a Canadian city during the early stages of criminal careers. *International Criminal Justice Review*, 12.

Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago: University of Chicago Pres.

Wolfgang, M. E., Thornberry, T. F., Figlio, R.M. (1987). *From boy to man: From delinquency to crime*. Chicago: University of Chicago Press.

Wright, B. R. E., Caspi, A., Moffitt, T.E., & Silva, P.A. (2001). The effects of social ties on crime vary by criminal propensity: A life course model of interdependence. *Criminology*, 39(2), 321-348.

Wright, K. A., Pratt, T. C., & DeLisi, M. (2008). Examining offending specialization in a sample of male multiple homicide offenders. *Homicide Studies*, 12(4), 381-398.

Yamaguchi, K. & Kandel, D. B. (1984a). Patterns of drug use from adolescence to young adulthood: II. Sequences of progression. *American Journal of Public Health*, 74(7), 668-672.

Yonai, S., Levine, S. Z., & Glicksohn, J. (2010). Elaboration on specialization in crime: Disaggregating age cohort effects. *Crime & Delinquency*.

Zara, G. & Farrington, D. (2009). Childhood and adolescent predictors of late onset criminal careers. *Journal of Youth & Adolescence*, 38(3), 287-300.

Zimring, F. E., Piquero, A. R., & Jennings, W.G. (2007). Sexual delinquency in Racine: Does early sex offending predict later sex offending in youth and young adulthood. *Criminology & Public Policy*, 6(3), 507-534.

APPENDIX

Appendix Table 1: Aggressive Orientation Wave 1 (age 10/11) – Wave 6 (age 22/24)

Items	Scale of Response	Coding
Sometimes you have to use physical force or violence to defend your rights (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
Arguing or fighting with other people usually makes matters worse rather than better. (W1-W4)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Standard
People will take advantage of you if you don't let them know how tough you are. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
People who get into fights are bullies. (W1-W4)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Standard
Sometimes you need to threaten people in order to get them to treat you fairly. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
People do not respect a person who is afraid to fight physically for his or her rights. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
Behaving aggressively is often an effective way of dealing with someone who is taking advantage of you. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
If you don't let people know you will defend yourself, they will think you are weak and take advantage of you. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
It is important to show other people that you cannot be intimidated. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
People tend to respect a person who is tough and aggressive. (W1-W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
It is important to let others know that if they do something wrong to you, you will make them pay for it (W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
If someone uses violence against you, it is important that you use violence against him or her to get even(W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
Being viewed as tough and aggressive is important for gaining respect. (W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
It is important not to back down from a fight or challenge because people will not respect you. (W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
It is important to show courage and heart and not be a coward in a fight or challenge in order to gain or maintain respect. (W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse
It is okay to disrespect or beat up others (even if they have done nothing to you) if it will bring you respect. (W5, W6)	(1) strongly agree (2) agree (3) disagree (4) strongly disagree	Reverse

Appendix Table 2: Descriptives of Aggressive Orientation

	Wave 1 (Ages 10-11)	Wave 2 (Ages 12-13)	Wave 3 (Ages 14-15)	Wave 4 (Ages 17-18)	Wave 5 (Ages 20-21)	Wave 6 (Ages 22-24)
Mean(SD)	0(1)	0(1)	0(1)	0(1)	0(1)	0(1)
Valid N	894	779	766	714	689	656
Total N	897	779	768	714	689	661
Scale Alpha	.708	.753	.709	.743	.903	.887

Appendix Table 3: Problem Behavior at Home and/or School Wave 1 (age 10/11) – Wave 4 (age 17/18)

Items	Scale of Response	Coding
Have you into trouble because you stayed out at night more than two hours past the time you were supposed to be home in the last year?	Yes/No	Dichotomous: 1=Yes; 0=No
Have you run away overnight in the last year?	Yes/No	Dichotomous: 1=Yes; 0=No
Have you skipped school or work in the last year?	Yes/No	Dichotomous: 1=Yes; 0=No
In the past 12 months, have you gotten into trouble at school?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 4: Descriptives of Problem Behavior at Home and/or School

	Wave 1 (Ages 10-11)	Wave 2 (Ages 12-13)	Wave 3 (Ages 14-15)	Wave 4 (Ages 17-18)
Engager(Abstainer)	166(712)	325(451)	369(397)	157(556)
Valid N	878	776	766	713
Total N	897	779	768	714

Appendix Table 5: Correlations between Home and School Problem Variables W1-W2

	Wave 1				Wave 2			
	1.	2.	3.	4.	1.	2.	3.	4.
1. Broke Curfew	1				1			
2. Run Away	.104**	1			.237**	1		
3. Skipped School	.145**	.283	1		.162**	.164**	1	
4. Trouble at School	.171**	.075*	.101**	1	.211**	.215**	.072	1
Valid N	878	878	814	814	775	776	775	652

Appendix Table 6: Correlations between Home and School Problem Variables W3-W4

	Wave 3				Wave 4			
	1.	2.	3.	4.	1.	2.	3.	4.
1. Broke Curfew	1				1			
2. Run Away	.111**	1			.214**	1		
3. Skipped School	.226**	.175**	1		.185**	.095*	1	
4. Trouble at School	.113**	.150**	.233**	1	.166**	.154**	.168**	1
Valid N	766	764	761	760	712	712	505	534

Appendix Table 7: Acts against Property Wave 1 (age 10/11) - Wave 6 (age 22/24)

Items	Scale of Response	Coding
Have you stolen, shoplifted, or faked someone's name in the past year? (W1-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
Have you broken something or messed up some place on purpose, like breaking windows, writing on a building, or slashing tires in the last year? (W1-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
How many times in the past year did you break into a building or house? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you steal something inexpensive (like clothes or a small amount of cash)? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you steal something expensive (like a stereo or TV)? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you purposely damage or destroy property? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you take a car for a drive without the owner's permission? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes

Appendix Table 8: Descriptive for Acts against Property

	Wave 1 10/11	Wave 2 12/13	Wave 3 14/15	Wave 4 17/18	Wave 5 20/21	Wave 6 22/24
Engager(Abstainer)	56(822)	80(696)	77(686)	41(672)	117(570)	72(576)
Valid N	878	776	766	713	687	648
Total N	897	779	768	714	689	661

Appendix Table 9: Correlations for Acts against Property Variables; W1-W4

	Wave 1		Wave 2		Wave 3		Wave 4	
	1.	2.	1.	2.	1.	2.	1.	2.
1. Stolen	1		1		1		1	
2. Vandalized	.021	1	.317**	1	.318**	1	.103**	1
Valid N	805	878	684	776	633	766	589	713

Appendix Table 10: Correlations for Acts against Property Variables; W5 and W6

	Wave 5					Wave 6				
	1.	2.	3.	4.	5.	1.	2.	3.	4.	5.
1. Break-in	1					1				
2. Stolen, inexpensive	.326**	1				.334**	1			
3. Stolen, expensive	.534**	.406**	1			.553**	.455**	1		
4. Vandalized	.396**	.433**	.385**	1		.334**	.455**	.401**	1	
5. Auto Theft	.269**	.204**	.331**	.257**	1	.130**	.204**	.179**	.168**	1
Valid N	687	687	687	687	687	642	643	648	648	648

Appendix Table 11: Psychological Antisocial Behavior Wave 1 (age 10/11) – Wave 3 (age 14/15)

Items	Scale of Response	Coding
In the last year, have you argued with or talked back to your caretaker at school or work?	Yes/No	Dichotomous: 1=Yes; 0=No
In the past year, have you done things on purpose that your caretaker at school or work told you not to do?	Yes/No	Dichotomous: 1=Yes; 0=No
In the past year, was there a time when you did things just to annoy another person?	Yes/No	Dichotomous: 1=Yes; 0=No
Was there a time in the past year when you blamed people for things that you did?	Yes/No	Dichotomous: 1=Yes; 0=No
In the past year, have you done mean things to people on purpose?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, have you gotten even with other people by doing things like hurting them, messing up their things, or telling lies about them?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 12: Descriptives for Psychological Antisocial Behavior

	Wave 1 (Ages 10/11)	Wave 2 (Ages 12/13)	Wave 3 (Ages 14/15)
Engager(Abstainer)	266(612)	284(492)	228(538)
Valid N	878	776	766
Total N	897	779	768

Appendix Table 13: Correlations for Psychological Antisocial Behavior W1

	Wave 1					
	1.	2.	3.	4.	5.	6.
1. Talked Back	1					
2. Was Defiant	.326**	1				
3. Annoyed	.378**	.465**	1			
4. Blamed	.290**	.362**	.538**	1		
5. Was Mean	.236**	.330**	.530**	.448**	1	
6. Retaliated	.255**	.251**	.392**	.388**	.411**	1
Valid N	749	803	731	769	878	878

Appendix Table 14: Correlations for Psychological Antisocial Behavior W2

	Wave 2					
	1.	2.	3.	4.	5.	6.
1. Talked Back	1					
2. Was Defiant	.333**	1				
3. Annoyed	.316**	.401**	1			
4. Blamed	.229**	.256**	.350**	1		
5. Was Mean	.282**	.321**	.390**	.272**	1	
6. Retaliated	.242**	.229**	.305**	.275**	.416**	1
Valid N	776	776	722	726	776	776

Appendix Table 15: Correlations for Psychological Antisocial Behavior W3

	Wave 3					
	1.	2.	3.	4.	5.	6.
1. Talked Back	1					
2. Was Defiant	.313**	1				
3. Annoyed	.323**	.384**	1			
4. Blamed	.192**	.325**	.337**	1		
5. Was Mean	.237**	.313**	.357**	.308**	1	
6. Retaliated	.236**	.288**	.319**	.299**	.391**	1
Valid N	766	766	766	765	766	766

Appendix Table 16: Lying Wave 1 (age 10/11) – Wave 4 (age 17/18)

Items	Scale of Response	Coding
In the past year, have you lied to get something you wanted or to get out of something?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 17: Descriptive for Lying

	Wave 1 (Ages 10/11)	Wave 2 (Ages 12/13)	Wave 3 (Ages 14/15)	Wave 4 (Ages 17/18)
Engager(Abstainer)	48(830)	95(680)	86(680)	61(652)
Valid N	878	775	766	713
Total N	897	779	768	714

Appendix Table 18: Violence Wave 1 (age 10/11) – Wave 6 (age 22/24)

Items	Scale of Response	Coding
Have you tried to hurt someone badly or been physically cruel to someone in the last year? (W1-W3)	Yes/No	Dichotomous: 1=Yes; 0=No
Have you tried to hurt someone badly or been physically cruel to an animal in the last year? (W1-W3)	Yes/No	Dichotomous: 1=Yes; 0=No
Now I want to ask you about bullying - you know, hitting or threatening or scaring someone who is younger or smaller than you or somebody who won't fight back. Have you bullied someone in this way in the past year? (W1-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
In the past year, have you started a physical fight in which someone was hurt or could have been hurt? (W1-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
In the past year, have you hurt someone with a weapon like a bat, brick, broken bottle, knife, or gun? (W1-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
How many times in the past year did you get into a fight with someone with the idea of seriously hurting him or her? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you carry a hidden weapon such as a knife or a gun? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you pull a knife or gun on someone? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you shoot or stab someone? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes
How many times in the past year did you use a weapon in a fight? (W5, W6)	Continuous	Dichotomous: 0=No; >0 is 1=Yes

Appendix Table 19: Descriptives for Violence

	Wave 1 10/11	Wave 2 12/13	Wave 3 14/15	Wave 4 17/18	Wave 5 20/21	Wave 6 22/24
Engager(Abstainer)	109(769)	90(686)	57(709)	21(692)	159(529)	103(548)
Valid N	878	776	766	713	688	651
Total N	897	779	768	714	689	661

Appendix Table 20: Correlations for Violence at W1

	Wave 1				
	1.	2.	3.	4.	5.
1. Cruel, person	1				
2. Cruel, animal	.290**	1			
3. Bullied	.287**	.186**	1		
4. Fought	.272**	.272**	.384**	1	
5. Weapon	.254**	.246**	.203**	.183**	1
Valid N	878	856	865	878	878

Appendix Table 21: Correlations for Violence at W2

	Wave 2				
	1.	2.	3.	4.	5.
1. Cruel, person	1				
2. Cruel, animal	.061	1			
3. Bullied	.144**	.042	1		
4. Fought	.268**	.055	.208**	1	
5. Weapon	.168**	.235**	.114**	.140**	1
Valid N	725	752	754	776	776

Appendix Table 22: Correlations for Violence at W3

	Wave 3				
	1.	2.	3.	4.	5.
1. Cruel, person	1				
2. Cruel, animal	.127**	1			
3. Bullied	.224**	.187**	1		
4. Fought	.237**	.095**	.333**	1	
5. Weapon	.414**	.203**	.272**	.271**	1
Valid N	701	766	679	679	765

Appendix Table 23: Correlations for Violence at W4

	Wave 4				
	1.	2.	3.	4.	5.
1. Cruel, person	---				
2. Cruel, animal	---	---			
3. Bullied	---	---	1		
4. Fought	---	---	.202**	1	
5. Weapon	---	---	.244**	.217**	1
Valid N	---	---	641	712	713

Appendix Table 24: Correlations for Violence at W5

	Wave 5				
	1.	2.	3.	4.	5.
1. Fought	1				
2. Carried a weapon	.401**	1			
3. Pulled a weapon	.403**	.512**	1		
4. Shot or stabbed	.271**	.242**	.452**	1	
5. Used a weapon	.451**	.327**	.523**	.461**	1
Valid N	687	687	688	688	688

Appendix Table 25: Correlations for Violence at W6

	Wave 6				
	1.	2.	3.	4.	5.
1. Fought	1				
2. Carried a weapon	.381**	1			
3. Pulled a weapon	.429**	.574**	1		
4. Shot or stabbed	.396**	.372**	.548**	1	
5. Used a weapon	.503**	.444**	.677**	.599**	1
Valid N	648	647	647	648	648

Appendix Table 26: Substance Use Wave 1 (age 10/11) – Wave 6 (age 22/24)

Items	Scale of Response	Coding
Have you had a drink in the last year? (W1,W2)	Yes/No	Dichotomous: 1=Yes; 0=No
Have you smoked a cigarette in the last year? (W1,W2)	Yes/No	Dichotomous: 1=Yes; 0=No
Have you used marijuana in the last year? (W2-W4)	Yes/No	Dichotomous: 1=Yes; 0=No
Indicated drinking to excess in the past year (see single items below) (W3-W6)	Yes/No	Dichotomous: 1=Yes; 0=No
During the past 12 months, how often have you used Marijuana in order to get high? (W5,W6)	(1) Never; (2) 1-2times; (3) about 3-11 times; (4) about 1-2 times a month; (5) about 3-4 times a month; (6) more than once a week	Dichotomous: 1 is 0=No; >1 is 1=Yes

Appendix Table 27: Descriptives for Substance Use

	Wave 1 10/11	Wave 2 12/13	Wave 3 14/15	Wave 4 17/18	Wave 5 20/21	Wave 6 22/24
Engager(Abstainer)	27(850)	63(713)	189(579)	308(406)	359(327)	342(305)
Valid N	877	776	768	714	686	647
Total N	897	779	768	714	689	661

Appendix Table 28: Correlations for Substance Use W1-W3

	Wave 1			Wave 2			Wave 3		
	1.	2.	3.	1.	2.	3.	1.	2.	3.
1. Alcohol/Excessive Drinking	1			1			1		
2. Cigarettes	.149**		---	.360**	1		---	---	
3. Marijuana	---	1	---	.411**	.466**	1	.483*	---	1
Valid N	864	854	---	742	757	766	617	---	767

Appendix Table 29: Correlations for Substance Use W4-W6

	Wave 4			Wave 5			Wave 6		
	1.	2.	3.	1.	2.	3.	1.	2.	3.
1. Alcohol/Excessive Drinking	1			1			1		
2. Cigarettes	---	---		---	---		---	---	
3. Marijuana	.405**	---	1	.331**	---	1	.374**	---	1
Valid N	421	---	714	686	---	685	641	---	629

Appendix Table 30: Drinking to Excess Wave 3 (age 14/15) & Wave 4 (age 17/18)

Items	Scale of Response	Coding
In the last year, did you miss school or work to go drinking or because you were hungover?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you go to school or work right after you had been drinking or drink while you were at school or work?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you get into trouble at school or work]or did you have problems with your school work or doing your jo because of drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you get into arguments with your family or friends because of drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did any of your friends not want to be with you because you were drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you get into any physical fights while drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you ever drink in situations where you could get hurt, like right before or while you were riding a bike, swimming or driving a car or motorcycle?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you get into trouble with the police when you were drunk or because you had been drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you often drink more than you thought you would?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you ever try to quit or cut down on your drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, have you often felt you should quit or cut down?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, could you drink a lot more alcohol than you used to before you got drunk?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, were there many days when you felt sick or hungover after drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you feel such a strong desire or urge to drink that you could not keep from drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, were there often things you cut down on or did not do because of drinking?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did drinking cause you to have any physical health problems or did drinking make a health problem worse?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did drinking cause you to get sad or depressed or very irritable?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, when you didn't drink or cut down on drinking, did you feel sick to your stomach or have to vomit or throw up?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, when you didn't drink or cut down on drinking, did you see, feel or hear things that other people couldn't?	Yes/No	Dichotomous: 1=Yes; 0=No
In the last year, did you ever drink alcohol or take any medicines like tranquilizers or sedatives so that you wouldn't feel bad or sick	Yes/No	Dichotomous: 1=Yes; 0=No

from cutting down?		
In the last year, did you ever discover you couldn't remember things you had said or done while you were drinking?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 31: Drinking to Excess Wave 5 (age 20/21) & Wave 6 (age 22/24)

Items	Scale of Response	Coding
How often in the past 12 months have you had enough alcohol at one time to get drunk?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months have you had family problems because of drinking too much?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months has drinking alcohol taken up so much time that you've had trouble getting your work or chores done?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months have you gotten into trouble with friends or acquaintances because of your drinking?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months have you felt the need to cut down on drinking?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months have you gotten into physical fights because of your drinking?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes
How often in the past 12 months have you had problems with the law because of your drinking?	(1) Often; (2) Sometimes; 3 (Rarely); 4 (Never)	Dichotomous: 4 is 0=No; <4 is 1=Yes

Appendix Table 32: Risky Sexual Behavior Wave 4 (age 17/18) -Wave 6 (age 22/24)

Items	Scale of Response	Coding
When you have sex, how often do you use a condom?	(1) Never; (2) Sometimes; (3) Most of the time; (4) All of the time	Dichotomous: 4 is 0=No; <4 is 1=Yes
When you have sex, how often do you have some alcohol or drugs beforehand?	(1) Never; (2) Sometimes; (3) Most of the time; (4) All of the time	Dichotomous: 1 is 0=No; <1 is 1=Yes

Appendix Table 33: Descriptives for Risky Sexual Behavior

	Wave 4 (Ages 17/18)	Wave 5 (Ages 20/21)	Wave 6 (Ages 22/24)
Engager(Abstainer)	332(377)	470(216)	455(190)
Valid N	709	686	645
Total N	714	689	661

Appendix Table 34: Correlations for Risky Sexual Behavior

	Wave 4		Wave 5		Wave 6	
	1.	2.	1.	2.	1.	2.
1. No Condom	1		1		1	
2. Sex w/Drugs and/or Alcohol	.221**	1	.298**	1	.002	1
Valid N	708	709	685	681	641	640

Appendix Table 35: Romantic Partner Emotional Abuse Wave 4 (age 17/18) -Wave 6 (age 22/24)

Items	Scale of Response	Coding
During the past month, when you and your Romantic Partner have spent time talking or doing things together, how often did you get angry at him/her? (W4)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes
During the past month, how often did you criticize your Romantic Partner or his/her ideas? (W4)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes
During the past month, how often did you insult or swear at your Romantic Partner? (W5, W6)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes
During the past month, how often did you shout or yell at your Romantic Partner because you were mad at (him/her)? (W4-W6)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes

Appendix Table 36: Descriptive for Romantic Partner Emotional Abuse

Descriptives	Wave 4 (Ages 17/18)	Wave 5 (Ages 20/21)	Wave 6 (Ages 22/24)
Engager(Abstainer)	315(60)	238(135)	257(101)
Valid N	375	373	358
Total N	714	689	661

Appendix Table 37: Correlations for Romantic Partner Emotional Abuse W4

	Wave 4		
	1.	2.	3.
1. Got Angry RP	1		
2. Criticized RP	.319**	1	
3. Shouted RP	.441**	.291**	1
Valid N	375	375	375

Appendix Table 38: Correlations for Romantic Partner Emotional Abuse W5 and W6

	Wave 5		Wave 6	
	1.	2.	1.	2.
1. Insulted RP	1		1	
2. Shouted RP	.321**	1	.545**	1
Valid N	373	373	356	356

Appendix Table 39: Romantic Partner Physical Abuse Wave 4 (age 10/11) -Wave 6 (age 22/24)

Items	Scale of Response	Coding
During the past month, how often did you slap or hit your Romantic Partner with your hands? (W4-W6)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes
During the past month, how often did you throw things at your Romantic Partner? (W5,W6)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes
During the past month, how often did you strike your Romantic Partner with an object? (W5,W6)	(1) Always; (2) Often; (3) Sometimes; (4) Never	Dichotomous: 4 is 0=No; <4 is 1=Yes

Appendix Table 40: Descriptives for Romantic Partner Physical Abuse

Descriptives	Wave 4 (Ages 17/18)	Wave 5 (Ages 20/21)	Wave 6 (Ages 22/24)
Engager(Abstainer)	59(316)	49(324)	27(330)
Valid N	375	373	357
Total N	714	689	661

Appendix Table 41: Correlations for Romantic Partner Physical Abuse

	Wave 5			Wave 6		
	1.	2.	3.	1.	2.	3.
1. Hit RP	1			1		
2. Threw objects at RP	.528**	1		.612**	1	
3. Hit RP with object	.497**	.661**	1	.480**	.614**	1
Valid N	373	373	373	355	.56	357

Appendix Table 42: Making Money Illegally Wave 5 (age 20/21) & Wave 6 (age 22/24)

Items	Scale of Response	Coding
In the past year, have you made money illegally?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 43: Descriptive for Making Money Illegally

	Wave 5 20/21	Wave 6 22/24
Engager(Abstainer)	99(587)	71(569)
Valid N	686	640
Total N	689	661

Appendix Table 44: D.U.I Wave 4 (age 17/18) -Wave 6 (age 22/24)

Items	Scale of Response	Coding
In the past year, have you drove when high or drowsy?	Yes/No	Dichotomous: 1=Yes; 0=No

Appendix Table 45: Descriptive for D.U.I.

	Wave 5 (Ages 20/21)	Wave 6 (Ages 22/24)
Engager(Abstainer)	201(484)	166(475)
Valid N	685	641
Total N	689	661

Appendix Table 46: Cell Counts for Probability Transitions W1-W2

	W2Mild Delinquents	W2 Versatile Actors	W2Abstainers
W1 Engagers	57	26	30
W1 Abstainers	119	15	409

Appendix Table 47: Cell Counts for Probability Transitions W2-W3

	W3 Mild Delinquents	W3 Versatile Actors	W3 Abstainers
W2Mild Delinquents	71	79	26
W2 Versatile Actors	15	26	0
W2Abstainers	86	0	353

Appendix Table 48: Cell Counts for Probability Transitions W3-W4

	W4 Partiers	W4 Versatile Actors	W4 Abstainers
W3 Mild Delinquents	144	28	0
W3 Versatile Actors	45	40	20
W3 Abstainers	20	0	359

Appendix Table 50: Cell Counts for Probability Transitions W4-W5

	W5 Mild Partiers	W5 Intense Partiers	W5 Versatile Actors	W5 Abstainers
W4 Partiers	49	96	29	35
W4 Versatile Actors	24	23	19	2
W4 Abstainers	110	70	26	173

Appendix Table 51: Cell Counts for Probability Transitions W5-W6

	W6 Mild Partiers	W6 Intense Partiers	W6 Versatile Actors	W6 Abstainers
W5 Mild Partiers	172	0	10	1
W5 Intense Partiers	5	157	7	20
W5 Versatile Actors	3	0	67	4
W5 Abstainers	0	12	0	198

Appendix Table 52: Independent T-Tests using Wave 1 Variables

	Maintained Sample			Attrition Sample			
	n	*M*	*SD*	*n*	*M*	*SD*	*t*
PC Income	597	6748.32	6182.46	205	6686.10	5659.03	.127
PC Education	601	12.491	2.228	205	12.571	2.260	-.442
Male	656	. 409	.492	233	.614	.488	-5.481***
AO	655	.016	1.019	231	-.060	.063	.984
Home/School	651	.163	.369	227	.264	.442	$-3.102^{**}{}_{A}$
Property	651	.058	.235	227	.079	.271	$-.1036_{A}$
Psychological	651	.2965	.45705	227	.3216	.46812	-.709
Lying	651	.0507	.21954	227	.0661	.24897	-.878
Violence	651	.1106	.31388	227	.1630	.37018	-1.907_{A}
Substance Use	650	.0292	.16858	227	.0352	.18480	-.451

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

$_{A}$ Equal variance not assumed