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MENTAL HEALTH AND SUBSTANCE-RELATED TREATMENT UTILIZATION, DROPOUT, AND CONTINUITY OF CARE AMONG DETAINED ADOLESCENTS: A 14-YEAR LONGITUDINAL STUDY

For the degree of Doctor of Philosophy

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MENTAL HEALTH AND SUBSTANCE-RELATED TREATMENT UTILIZATION, DROPOUT, AND CONTINUITY OF CARE AMONG DETAINED ADOLESCENTS: A 14-YEAR LONGITUDINAL STUDY

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For my mother, who is and always will be my role model. You continue to be the ideal exemplar of a strong, intelligent, and independent woman. Thank you for your endless love, encouragement, validation, and patience.

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TABLE OF CONTENTS

Page

Page

LIST OF TABLES

Table Page

Table Page

Table Page

LIST OF FIGURES

ABSTRACT

White, Laura Morgan. Ph.D., Purdue University, August 2015. Mental Health and Substance-Related Treatment Utilization, Dropout, and Continuity of Care among Detained Adolescents: A 14-Year Longitudinal Study. Major Professor: John H. McGrew.

Although approximately 60%-80% of detained adolescents have a psychiatric disorder, little is known about their utilization of mental health and substance-related treatment services upon release from detention. Given that treatment can potentially reduce symptomology and recidivism, the study examined detained adolescents' post-detention treatment utilization and longitudinal patterns of use. Data were abstracted from the electronic juvenile justice records and medical records of 9664 detained adolescents (62.7% male; 34.8% White, 65.2% Black; 72.6% with disorder) with Medicaid coverage held in a Midwestern detention center at some time during 1998-2011. A series of statistical tests (e.g., chi-square, ANOVA, logistic regression, Kaplan-Meier survival analyses, Cox regression) were conducted to identify group differences in treatment utilization during the 14-year follow-up period. Following detention release, approximately 66.2% of adolescents were re-arrested and 54.9% were re-detained or incarcerated. Treatment utilization within two years post-detention was 36.7%; 31.4% obtained mental health treatment, 10.4% obtained substance-related treatment, 36.0% obtained outpatient treatment, and 6.2% obtained non-outpatient treatment. Among treatment users, 22.5% dropped out of treatment within 1-3 sessions and 40.6% experienced gaps (>45 days) between treatment services. Treatment utilization was significantly higher among males, White (vs. Black) adolescents, younger adolescents, violent (vs. non-violent) offenders, recidivists (vs. non-recidivists), and adolescents with mental disorders (vs. substance-related disorders). Variables associated with increased

likelihood of post-detention treatment included: male gender, psychiatric disorder(s), pre-detention arrest(s), charge severity, violent offender, incarceration, and pre-detention treatment; age and Black race were associated with decreased likelihood of treatment. As one of the only longitudinal studies to examine treatment utilization among detained adolescents upon community reentry, findings suggest limited service utilization, as well as treatment gaps and disparities. Future research should focus on the treatment needs of detained adolescents, factors associated with disparities, and programs/policies to ensure consistent identification, referral, and connection to care for detained adolescents.

CHAPTER 1. INTRODUCTION

1.1 Detained Adolescents

Approximately 1.65 million adolescents (≥18 years) are arrested in the United States each year (Office of Juvenile Justice and Delinquency Prevention, 2013). Of these, about 20%, or roughly 330,000 youths, are placed in short-term detention centers or long-term prison facilities. These adolescents represent a vulnerable population, marked by high rates of behavioral health concerns, mental disorders, and substance-related disorders (Shufelt & Cocozza, 2006; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002). Despite evidence that these problems can interfere with rehabilitation and successful reintegration into the community (Calley, 2012; Cottle, Lee, & Heilbrun, 2001), research is limited regarding this population's access to and use of treatment services to address mental health and/or substance-related problems (Kataoka, Zima, Dupre, Moreno, Yang, & McCracken, 2001; Teplin, Abram, McClelland, Washburn, & Pikus, 2005). The few studies that have examined treatment utilization among detained adolescents (DAs) report inconsistent findings, such that conclusions about treatment prevalence, types of services, and characteristics of treatment users remain uncertain (Herz, 2001; Johnson, Cho, Fendrich, Graf, Kelly-Wilson, Pickup, 2004). Furthermore, the majority of studies have examined treatment utilization cross-sectionally (Rawal, Romansky, Jenuwine, & Lyons, 2004; Sedlak & McPherson, 2010), so patterns in service use over time, particularly upon community reentry, are not well understood. Thus, longitudinal research that tracks detained adolescents over time is needed to fully understand patterns of treatment utilization for this population.

The detained adolescent population is defined as any youth (10-18 years) residing in a correctional facility, such as a detention center or juvenile prison (Yazzie, 2011).

Typically, these youths are placed in correctional facilities after being arrested, charged, and/or adjudicated of criminal offenses (Gupta, Kelleher, Pajer, & Cuellar, 2005). The type of facility in which a detained adolescent is placed depends upon the status of the youth's criminal case. Specifically, detained adolescents (DAs) who have been arrested and/or charged with an offense(s) are typically placed in detention centers for short-term stays of about 2-4 weeks, as these adolescents await their appearances in court (Desai, Goulet, Robbins, Chapman, Migdole, & Hoge, 2006; Yazzie, 2011). Following court proceedings, about 4%, or roughly 70,000 adolescents, are convicted of serious crimes and placed in juvenile prisons for long-term stays of several months to several years (Bureau of Justice Statistic, 2015; Yazzie, 2011). The prevalence of DAs in the United States is estimated to be about 224 per 100,000 adolescents, or 0.22% of youth nationwide (Sedlak & Bruce, 2010). The number of DAs held in detention or prison total approximately 80,000 to 100,000 adolescents on any given day in the United States (Rawal et al., 2004).

Compared to the general adolescent population, DAs are disproportionately male and racial/ethnic minorities (Henggeler & Schoenwald, 2011; Sedlak, 2009). In fact, according to recent census data, at least 75%-80% of DAs are male and about 60%-70% of DAs are Black, Hispanic, or another racial/ethnic minority (Office of Juvenile Justice and Delinquency Prevention, 2013; Sedlak & Bruce, 2010). More than half of all juveniles detained in detention or prison are 16-17 years old during their stay in a juvenile justice facility (Sedlak, 2009). In addition, the majority of DAs are raised in families of low socioeconomic status, marked by high rates of poverty and unemployment (Dembo, Pacheco, Schmeidler, Ramirez-Garmica, Guida, & Rahman, 1997; Rogers, Zima, Powell, & Pumariega, 2001; Shelton, 2005). When not incarcerated, at least half of all DAs live in poverty and receive some form of government assistance or public aid (Johnson et al., 2004; Robertson, Dill, Hussain, & Undesser, 2004). Evidence suggests that socioeconomic status, rather than race or ethnicity, may be the critical factor underlying the disproportionate number of minority adolescents involved in the juvenile justice system, since Black and Hispanic adolescents are more likely to live in poverty (Braverman, & Murray, 2011).

In conjunction with low socioeconomic status, many DAs experience unstable housing and frequent out-of-home placements in foster care, group homes, residential treatment centers, and/or homes of extended family members (Maschi, Hatcher, Schwalbe, Rosato, 2008; Riley, 2014; Shelton, 2001). According to a national representative sample of DAs in the US, only one in three adolescents live in a two-parent household prior to incarceration and a sizable proportion of detained youth experience homelessness at least once during their adolescence (Sedlak & Bruce, 2010). Further, as many as 20%-25% of DAs are current or expectant parents, compared to only 2% of non-detained adolescent males and 6% of non-detained adolescent females (Braverman, & Murray, 2011; Sedlak, 2009). Finally, evidence suggests that lesbian, gay, bisexual, and transgendered youth are likely to be over-represented within the detained adolescent population (Curtin, 2002; Schaffner, 1998). For example, one study found that approximately 20%-33% of detained females identify as bisexual or lesbian in sexual orientation, whereas only 4%-10% of females within the general adolescent population identify as such (Schaffner, 1998).

1.2 Mental Health Concerns of Detained Adolescents

The detained adolescent population suffers from an increased incidence of poor mental health, as evidenced by high rates of mental disorders, severe mental illness (SMI), trauma history, suicidal behavior, and comorbidity of disorders (Sedlak & McPherson, 2010; Shufelt & Cocozza, 2006). The majority of DAs meet criteria for at least one mental disorder, with estimates ranging from 60-80% of the population (Teplin, Abram, McClelland., Dulcan, Mericle, 2002; Teplin, Abram, McClelland, Mericle, Dulcan, & Washburn, 2006; Teplin, Welty, Abram, Dulcan, & Washburn, 2012), compared to only 15%-20% of the general adolescent population (Hoeve, McReynolds, & Wasserman, 2013; Vincent, Grisso, Terry, & Banks, 2008). With respect to specific disorders, a recent meta-analysis of 32 studies reported the following prevalence rates for DAs: 10.6% of males and 29.2% of females have major depressive disorder, 11.7% of males and 18.5% of females have attention deficit/hyperactivity disorder, and 52.8% of males and 52.8% of females have a behavior-related disorder (e.g., conduct disorder,

oppositional defiant disorder) (Fazel, Doll, & Langstrom, 2008). Furthermore, as many as half of the DA population meets criteria for an anxiety-related disorder, 2%-5% of adolescents meet criteria for obsessive compulsive disorder, and about 12%-16% of adolescents meet criteria for an eating disorder (Sedlak & Bruce, 2010; Teplin et al., 2006). Given the high frequency of mental disorders among detained adolescents, comordibity of disorders is common. Almost 50% of all DAs meet diagnostic criteria for at least two disorders and 15%-25% of DAs meet criteria for three or more disorders (Abram, Teplin, McClelland, Dulcan, 2003; Braverman & Murray, 2011).

Just as mental disorders are common among DAs, the risk for severe mental illness (SMI), such as psychosis, delusional thinking, and early-onset schizophrenia, is also disproportionately high within this population (Shufelt, & Cocozza, 2006). Detained youth are about ten times more likely than non-detained peers to experience symptoms of SMI, such as auditory or visual hallucinations, delusions, paranoia, and disordered thinking (Bath, Clark, & Low, 2013; Fazel et al., 2008). In fact, an estimated 12%-17% of adolescents experience hallucinations and about 40%-45% experience disordered thinking (Sedlak & McPherson, 2010). Such symptomology is strongly related to the development of SMI, and the studies that have examined mental illness among detained youth estimate that 3.3% of male DAs and 2.9% of female DAs meet criteria for psychotic disorders or schizophrenia (Fazel et al., 2008; Teplin et al., 2012).

Problems with trauma are also quite prevalent among adolescents held in juvenile justice facilities (Sedlak, & McPherson, 2010; Teplin et al., 2002). Although the severity of trauma history varies, the majority of DAs endorse experiencing at least one traumatic event, such as neglect, malnourishment, physical abuse, sexual abuse, assault, or witnessing extreme violence (Sedlak, & McPherson, 2010; Steiner, Garcia, & Matthews, 1997). According to the most recent Survey of Youth in Residential Placement (SYRP), which sampled 7,073 adolescents held in juvenile justice facilities, 23% of adolescents in detention and 25% of adolescents in prison endorsed experiencing three or more traumatic events (Survey of Youth in Residential Placement, 2003). Not surprisingly, epidemiological studies estimate that as many as one in three DAs have Posttraumatic Stress Disorder (Steiner et al., 1997; Teplin et al., 2002). Moreover, about one in five

DAs endorse frequent, intense suicidal ideation and one in ten DAs report a history of suicidal behaviors and/or attempts (Hussey, Drinkard, & Flannery, 2007; Shufelt & Cocozza, 2006).

1.3 Substance-Related Concerns of Detained Adolescents

Over the past two decades, the number of adolescents using drugs and/or alcohol has steadily increased (Jones, Heflinger, & Saunders, 2007) and this has been particularly true among juveniles involved in the juvenile justice system (Dembo, et al., 1997; Soenksen, Stein, Brown, Stengel, Rossi, & Lebeau, 2015). Approximately 70%-90% of DAs admit to regular use of alcohol and drugs, compared to only about 35% of non-detained adolescents (Bostwick, & Ashley, 2009; Sedlak, 2009). When interviewed about substance use, DAs report that drugs and alcohol are readily available and easy to access within their communities, often resulting in early experimentation with substances prior to the age 10, as well as regular use of multiple substances (Bath et al., 2013; Dembo et al., 1997). Many DAs acknowledge that substance use leads to problems at home, school, work, the legal system, and with friends, but continue to use substances to gain or maintain peer acceptance, deal with problems, improve their mood, have fun, and/or waste time (Sedlak, 2009; Survey of Youth in Residential Placement, 2003). At least half of all DAs meet formal criteria for a substance-related disorder (Aarons, Brown, Hough. 2004; Hussey et al., 2007) and about 25% of DAs have two or more substance-related disorders (Young, Dembo, & Henderson, 2007). Alcohol, tobacco, and marijuana represent the most commonly used substances among DAs, although about 20%-25% of DAs engage in regular experimentation with other drugs like cocaine, ecstasy, crystal methamphetamine, inhalants, heroin, and/or prescription medications (Jones et al., 2007; Sedlak & McPherson, 2010). Furthermore, as many as 65% of DAs are comorbid, meaning they meet criteria for both mental disorders and substance-related disorders (Hussey et al., 2007; Johnson et al., 2004).

Evidence suggests that some demographic variables are related to mental health and substance-related problems within the detained adolescent population. Specifically, detained females appear to be at greater risk for mental health problems than their male

counterparts. A meta-analysis based on 70,423 adolescents from 283 juvenile justice facilities found that females were 1.8 to 2.4 times more likely to have clinically significant elevations on various mental health symptom scales, as measured by a mental health screener (Vincent et al., 2008). Additionally, studies indicate that, except for psychotic disorders, prevalence rates for mental disorders are higher among detained females than detained males (Abram, et al., 2003; Hussey, Drinkard, Falletta, & Flannery, 2008). Not surprisingly, detained females regularly report greater severity and frequency of mental illness symptoms, lower overall functioning, and poorer mental health status (Bostwick, & Ashley, 2009; Ryan, Williams, & Courtney, 2013).

Several reasons to explain gender discrepancies among DAs have been proposed, mostly related to the differential treatment of males and females within the juvenile justice system. For example, females are less likely to be arrested than males (Bostwick, & Ashley, 2009); about 3 in 100 adolescent females were arrested in 2010, compared to about 7-8 in 100 adolescent males (Office of Juvenile Justice and Delinquency Prevention, 2013). In addition, judges are less likely to place females in correctional facilities and more likely to assign them to probation or other diversion programs (Bostwick, & Ashley, 2009; Vincent et al., 2008). Thus, detained females tend to be the most problematic and deviant females involved in the juvenile justice system, with severe mental health problems (Hussey et al., 2008; Veysey, 2003), whereas detained males are not necessarily the most deviant males involved in the juvenile justice system.

Evidence is mixed regarding racial and ethnic differences in overall rates of mental health problems among detained adolescents. Some studies suggest White DAs have significantly higher mental health needs (Lopez-Williams, Vander Stoep, Kuo, & Stewart, 2006) and are more likely than Black DAs or Hispanic DAs to meet criteria for one or more psychiatric disorders (Abram, et al., 2003; Teplin et al., 2012). In contrast, other studies have found that minority DAs have more significant mental health problems than White DAs (Lo, Howell, & Cheng, 2003; Rawal et al., 2004), or failed to find significant racial/ethnic differences in the proportion of DAs with mental disorders (Dalton, Evans, Cruise, Feinstein, & Kendrick, 2009). Despite such contradictory findings, there is some evidence of race/ethnic differences for specific diagnoses

(Pumariega, Atkins, Rogers, Montgomery, Nybro, Caesar, & Millus, 1999). Black and Hispanic adolescents are more likely to be diagnosed with affective disorders, anxiety disorders, and/or psychotic disorders, whereas White adolescents are more likely to be diagnosed with attention deficit-hyperactivity disorder, conduct disorders, and/or substance-related disorders (Getahun, Jacobsen, Fassett, Chen, Demissie, & Rhoads, 2013; Teplin et al., 2012; Vincent et al., 2008). In one of the most comprehensive studies of mental health concerns among the DA population, Vincent and colleagues (2008) examined the MAYSI-2 results for over 70,000 youth in 283 facilities. Results showed that White DAs were more likely than minority DAs to endorse concerns related to alcohol/drug use, suicidal ideation, and somatic complaints, Black DAs were more likely to endorse psychosis-related symptoms, and no differences were found for endorsement of mood and anxiety symptoms. Based on such findings, Vincent and colleagues (2008) concluded that the extant literature is currently too limited to draw firm conclusions about possible differences in mental health problems across race/ethnicity groups within the detained adolescent population.

1.4 Why Care about these Concerns among Detained Adolescents?

As noted above, strong empirical evidence suggests that DAs suffer disproportionately high rates of mental health concerns, mental disorders, and substance-related disorders. Such mental health problems are concerning because they are associated with recidivism (Cottle et al., 2001), or the repetition of criminal activity that typically involves re-offending and/or getting re-arrested with a new charge (Myner, Santman, Cappelletty, & Perlmutter, 1998). Recidivism is common among DAs, with an estimated 40%-70% of adolescents getting re-arrested following release from detention or prison (Gordon, Diehl, & Anderson, 2012; Grunwald, Lockwood, Harris, & Mennis, 2010). As a result, many of these juveniles return to correctional facilities and become stuck in a "revolving door" within the juvenile justice system, in which they are repeatedly arrested, detained, released, re-arrested, and re-detained (Harrison, 2001; Maschi et al., 2008). Unfortunately, the end result of this revolving door is often long-term incarceration in the adult prison population (Hussey et al., 2008). Not surprisingly,

longitudinal studies show that adolescents with the highest risk of incarceration in adult prison are those with a history of incarceration as a juvenile (Myner et al., 1998).

Unfortunately, mental health problems increase the risk of recidivism and contribute to the revolving door problem and multiple incarceration stays (Calley, 2012; Grunwald et al., 2010). According to one meta-analysis of 23 studies and 15,265 adolescents, affective disorders (e.g., anxiety, depression) represent one of the strongest predictors of juvenile recidivism (Cottle, et al., 2001). Substance abuse, trauma, neglect, conduct problems, ADHD, and untreated mental health symptoms can also greatly increase the risk of recidivism (Gordon et al., 2012; Ryan, et al., 2013). Interestingly, a recent longitudinal study found that the relationship between mental health problems and recidivism differed by race/ethnicity, with a strong association between conduct problems and property-related recidivism among White detained youth, compared to an association between emotional problems and recidivism among Moroccan detained youth and an associated between hyperactivity and recidivism among Surinamese detained youth (Colins, Boonmann, Veenstra, van Domburgh, Buffing, Doreleijers, & Vermeier, 2013). Colins and colleagues (2011) also discovered that drug abuse disorders, either alone or comorbid with mental disorders, were linked directly to increased probability of recidivism. Clearly, DAs with mental health and substance-related concerns face an elevated risk of recidivism. Thus, addressing these concerns is a critical factor in reducing the elevated risk for recidivism and preventing continued involvement in the revolving door of the juvenile justice system.

1.5 Treatment Services for Detained Adolescents

Given the strong relationship between mental health, recidivism, and incarceration, mental health services represent a promising avenue for addressing both mental health concerns and the revolving door problem (Lipsey, 2011; Lopez-Williams, et al., 2006). Blueprints for Healthy Youth Development, a research center designed to identify, test, and disseminate evidence-based interventions for high-risk youth, reviewed over 600 delinquency, drug, and violence prevention and intervention programs (Henggeler & Sheidow, 2012). The researchers involved in the review identified

multisystemic therapy, functional family therapy, and multidimensional treatment foster care as three gold-standard mental health interventions with strong empirical support for treating detained adolescents. Positive outcomes for these treatments include increased self-esteem, reduced psychiatric symptoms, reduced substance use, improved family functioning, decreased association with deviant peers, reduced number of re-arrests, reduced severity of charges, and delayed time until re-arrest (Cuellar, McReynolds, & Wasserman, 2006; Henggeler & Schoenwald, 2011). Key treatment components entail behavioral and cognitive-behavioral strategies that aim to improve the function of the adolescent and the adolescent's family. Such treatments are typically community-based and maintain high fidelity through quality assurance checks (Henggeler & Schoenwald, 2011; Lipsey, 2011).

After conducting a large meta-analysis of current treatments for detained youth, Lipsey (2009) concluded that treatment services focused on behavioral and interpersonal skills tend to be highly successful for promoting reductions in violence and recidivism. Specifically, family functional therapy (FFT), community residential programs, and multisystem therapy (MST) services showed significant impacts on recidivism (Darnell & Schuler, 2015; Gordon et al., 2012). For example, the first community-based experimental study of FFT produced real-world reductions in recidivism of 50% at 1-year follow-up among adolescents who successfully completed the entire FFT intervention (Sexton & Turner, 2010). However, such reductions in recidivism are not a universal finding and poorly implemented interventions have failed to demonstrate significant, long-term impacts on repeated criminal activity (Lipsey, 2011; Schwalbe, Gearing, MacKenzie, Brewer, & Ibrahim, 2012).

Although there is strong empirical support for the efficacy of specific mental health interventions, the evidence to support substance use treatments is limited (Desai et al., 2006). Based upon findings of a meta-analysis of current alcohol/drug treatments for detained youth, Williams and Chang (2000) were unable to identify any specific intervention with strong empirical evidence for producing long-term reductions in substance use among DAs. At best, these researchers were able to conclude that some treatment services appear to be better than no treatment services (Desai et al., 2006;

Williams & Chang, 2000). However, researchers have identified several key components for substance-related interventions that appear to be related to positive outcomes; components include substance use screening, thorough assessment of substance use, motivation techniques, cognitive-behavioral and/or family-based treatment techniques, graduated sanctions, and completion incentives (Bath et al., 2013). Treatment outcomes among DAs also tend to be better when substance-related interventions have high treatment fidelity, long duration (at least 6 weeks), focus on development of interpersonal skills, provide family psychoeducation, and include active family participation (Bath et al., 2013).

1.6 Prevalence of Treatment Use among Detained Adolescents

Despite the existence of several empirically-supported mental health interventions (e.g., FFT, MST) that promote good outcomes for the detained adolescent population (Darnell & Schuler, 2015; Henggeler & Schoenwald, 2011; Schwalbe et al., 2012), the majority of DAs do not receive treatment services. Prevalence estimates for mental health treatment utilization among DAs vary considerably across studies, ranging from as low as 3% (Winter 1991) to as high as 76% (Lyons, Griffen, Quintenz, Jenuwine, Shasha, 2003). Clearly, there is a lack of clear consensus on service utilization rates for DAs within the literature. To better understand service utilization, I conducted a meta-analysis of treatment utilization rates among DAs, based on 32 studies with 34 distinct samples totaling 21,039 adolescents (White, Aalsma, Salyers, & McGrew, under review). Results indicated that approximately 37.8% of DAs obtained at least one mental health and/or substance-related treatment service at some point in time, with 29.3% of DAs obtaining mental health services (excluding substance-related services) and 26.0% of DAs obtaining substance-related services (excluding mental health services). Furthermore, less than 60% DAs with mental health needs (e.g., diagnosed mental disorders) received any type of mental health and/or substance-related treatment. Findings from the meta-analysis suggest that about one in three DAs obtain treatment services, whereas two in three DAs have prominent mental health and/or substance-related problems that likely require treatment services.

Among the small percentage of DAs who utilize treatment services, the most common services appear to be outpatient treatment in the community (Lyons et al., 2003). Based upon the studies included my meta-analysis referenced above, an estimated 20%-40% of DAs have attended at least one mental health outpatient session (Hussey et al., 2007; Hussey et al., 2008; Rawal et al., 2004) and about 15%-35% have attended at least one substance-related outpatient session at some point in time (Hussey et al., 2007; Paskar, 2008). Interestingly, when restricting services to only court-ordered outpatient treatment, rates for mental health outpatient treatment among DAs decrease to approximately 8%-10% (Aalsma, Tong, Lane, Katz, & Rosenman, 2012b; Novins, Duclos, Martin, Jewett, & Manson, 1999), whereas rates for substance-related outpatient treatment increase to approximately 38%-40% (Novins et al., 1999). In addition to traditional outpatient treatment, an estimated 18%-28% of DAs with substance-related disorders participate in community-based non-professional programs, such as Alcoholics Anonymous or Narcotics Anonymous (Johnson et al., 2004), and as many as 15%-25% of juvenile justice-involved youth seek religious counseling to address mental health and/or substance-related concerns (Novins et al., 1999).

Similar to the general adolescent population, prevalence rates for non-outpatient services among detained youth are notably low (Hoeve et al., 2013). The few studies to examine non-outpatient treatment among juvenile justice-involved adolescents indicate about 10%-25% of DAs utilize inpatient services (Lopez-Williams et al., 2006; McPherson, 1991; Robertson et al., 2004) and 2%-16% reside in long-term residential treatment facilities for mental health concerns (Lyons, Baerger, Quicgley, Erlich, & Griffith, 2001; Novins et al., 1999); about 3%-12% utilize inpatient services (Lyons et al., 2001; Paskar, 2008) and 2%-10% reside in long-term residential treatment facilities for substance-related problems (Novins et al., 1999; Rawal et al., 2004). Since most studies have focused on the prevalence of treatment utilization among DAs (Bullis, Yovanof, & Havel, 2004; Lopez-Williams et al., 2006; Rogers, Pumariega, Atkins, & Cuffe, 2006; Shelton 2005), rather than the quantity or frequency of treatment utilization, conclusions about mean number of inpatient stays, average number of outpatient sessions, frequency between services, or gaps in treatment services cannot be made.

Despite limited information about the quantity and frequency of service use by DAs, researchers have examined the cost of treating adolescents with a history of detention placements and mental health diagnoses. Specifically, Hussey and colleagues (2008) estimated that the average cost of treating a detained youth with high-quality, evidence-based treatment is approximately $10,274, with treatment services including individual therapy, group counseling, family counseling, case management, in-home visits, and housing (if needed) (Hussey et al., 2008). Given the high costs associated with recidivism (e.g., multiple court appearances, multiple detention/prison stay) that place a large financial burden on the juvenile justice system, researchers have concluded that providing evidence-based services to DAs represents an efficient and cost-effective option for managing DAs (Braverman & Murray, 2011; Hussey et al., 2008). However, few DAs obtain high-quality, wrap-around treatment services that are empirically supported. Rather, the treatment services available for DAs are often low quality and/or ineffective (Aarons et al., 2004; Teplin et al., 2005); only 5.0% of eligible DAs participate in evidence-based interventions each year (Henggeler & Schoenwald, 2011). This markedly low prevalence estimate reflects a missed opportunity, since treatment can potentially improve symptomology, enhance individual and family functioning, and reduce recidivism (Lipsey, 2009; Lyons et al., 2003; Sexton & Turner, 2010).

1.7 Factors Related to Treatment Use among Detained Adolescents

Altogether, the low rates of treatment utilization, in conjunction with low-quality services, indicate that DAs represent an underserved population (Curtin, 2002; Johnson et al., 2004; Teplin et al., 2005). Several key factors and treatment barriers at the system-level and individual-level have been proposed as possible reasons to explain the poor engagement in treatment among DAs (Abram, Paskar, Washburn, & Teplin, 2008; Kates, Gerber, & Casey, 2014; Lopez-Williams et al., 2006; Rogers et al., 2001). With regards to system-level factors, limited availability of treatment services within facilities, as well as failure to connect DAs to treatment upon community reentry, represent serious treatment barriers. Currently, all juvenile justice facilities are legally mandated to provide behavioral healthcare to adolescents residing within facilities (Braverman &

Murray, 2011). As recommended by the American Academy of Pediatrics, the National Commission on Correctional Health Care (NCCHC) has established standards for mental health and substance-related treatment for detained youth (Gallagher & Dobrin, 2007). However, facilities are not required to obtain accreditation with the NCCHC, so there is no consistent mechanism for monitoring services, keeping facilities accountable, or providing funding to facilities to maintain high standards of care (Pajer, Kelleher, Gupta, Rolls, & Gardner, 2007; Yazzie 2011). As a result, most juvenile justice facilities lack the budget and/or resources to provide psychiatric treatment and tend to offer the bare minimum of care (Desai et al., 2006; Mulvey, Schubert, & Chung, 2007; Riley, 2014). For example, NCCHC guidelines recommend that facilities administer mental health screeners within 14 days of intake, provide 24-hour emergency mental health services, and provide DAs the right to request mental health treatment services daily (Braverman & Murray, 2011), but less than half of facilities are compliant with these standards (Braverman & Murray, 2011). As of 2007, only 53 of approximately 3500 juvenile justice facilities were fully accredited with the NCCHC (Gallagher & Dobrin, 2007).

Even when juvenile justice agencies attempt to comply with NCCHC standards, the treatment services can vary greatly across facilities. Only a small percentage (25%-30%) of facilities have established plans for 24-hour mental healthcare and only 40%-55% of facilities offer mental health counseling (Pajer et al., 2007; Young et al., 2007). Furthermore, 30%-40% of facilities for detained youth do not use mental health and/or substance-related screeners (Young et al., 2007) and one-third of the facilities that use screeners rely on correctional staff to administer these assessments, despite no training in behavioral health (Desai et al., 2006; Sedlak, 2009). Much like the low prevalence of evidence-based treatment, failure to implement and/or appropriately use mental health screeners within the juvenile justice system represents a missed opportunity, since screeners help detention staff identify DAs with mental health and/or substance-related needs, determine appropriate services during (and after) detention, and improve communication between staff and DAs (Rogers et al., 2001; Williams, Grisso, Valentine, & Remsburg, 2008). It should be noted, however, staff within the juvenile justice system sometimes misinterpret findings of screeners or fail to identify DAs with mental health

concerns, perhaps due to limited resources, lack of training, and/or high caseloads (Wasserman, McReynolds, Whited, Keating, Musabegovic, & Huo, 2008). As a result, DAs may be overlooked and not connected to appropriate mental health and substance-related services within juvenile justice facilities and/or in the community (Hoeve et al., 2013; Towberman, 1994). Thus, while screeners serve as vital tools for initial assessment, screening for mental health concerns is not sufficient on its own to bring about positive treatment outcomes and successful rehabilitation for DAs (Cauffman, 2004). Mental health screeners should never serve as replacements for treatment services, nor viewed as signs of treatment engagement or treatment success (Rogers et al., 2001; Williams et al., 2008).

In addition to limited services available in juvenile justice facilities, other system-level factors that impacts treatment utilization among DAs include staff behaviors, attitudes, and knowledge (Holloway, Brown, Suman, & Aalsma, 2013). While adolescents are being detained, detention staff are largely responsible for determining who receives services and the types of services being offered. Unfortunately, evidence suggests that negative attitudes among providers can result in biased and differential treatment based on adolescents' gender, race, or other characteristics (Lopez-Williams et al., 2006; Towberman, 1994). Once DAs are released from detention, juvenile probation officers play an integral role in helping DAs obtain appropriate mental health and substance-related services in the community (Holloway et al., 2013; Riley, 2014). This is because many DAs do not know who, where, or how to receive services, so probation officers serve as a source of information or "gateway providers" for assisting detained youth upon community reentry (Stiffman, Pescosolido, & Cabassa, 2004). Not surprisingly, juvenile probation officers' knowledge and competency to identify mental health concerns, familiarity with available resources, and personal attitudes towards rehabilitation versus punishment have been directly linked to treatment service engagement among the DAs on their caseloads (Howell, 2003; Stiffman et al., 2004; Wasserman et al., 2008).

Another system-level barrier related to treatment utilization among detained youth involves insurance coverage. Approximately 15%-20% of DAs are uninsured and

cannot afford to utilize mental health services in the community (Gupta et al., 2005; Maschi et al., 2008), leaving the juvenile justice system as one of the only avenues to access treatment services (Pumariega et al., 1999; Rogers et al., 2006). This is problematic, given that services within detention facilities are not always available and/or high quality. For DAs with insurance, many receive services through Medicaid programs (Braverman & Murray, 2011). While such programs help adolescents in the community, about half the states in the United States suspend or terminate Medicaid coverage upon placement in a correctional facility (Cuellar, Kelleher Rolls, & Pajer, 2005; Gupta et al., 2005). Termination of coverage not only hinders adolescents already receiving services in detention, but also prevents service use during the critical period immediately after detention, due to a wait time of approximately 45-90 days for re-enrollment into Medicaid (Liddle, Dakof, Henderson, & Rowe, 2011). The delay in access to community treatment services post-detention disrupts continuity of care and has been shown to negatively impact the treatment progress that adolescents make during incarceration (Gupta et al., 2005; Liddle et al., 2011). In addition, confusion associated with the application process for re-enrolling in Medicaid prevents many adolescents from successfully re-applying for Medicaid coverage post-detention (Gupta et al., 2005). Thus, except for the small percentage of adolescents (15%-20%) with private insurance, most DAs with mental health needs face significant system-level barriers that interfere with obtaining effective mental health services both during and immediately following detention (Shelton, 2005).

With regard to individual-level factors associated with service use among DAs, gender and race/ethnicity have been shown to impact treatment utilization (Kataoka et al., 2001; Lopez-Williams et al., 2006). Regarding gender, rates of treatment-seeking, treatment referral and service utilization tend to be significantly higher among incarcerated females than males (Abram, et al., 2008; Veysey, 2003). In addition, detained females are more likely to participate in several types of services (e.g., individual, group, family) and remain in treatment longer than their male counterparts (Hussey et al., 2008; Pumariega et al., 1999). Regarding race/ethnicity, DAs from racial/ethnic minority groups tend to be significantly less likely than White DAs to be

referred for treatment, placed in mental health treatment facilities, and utilize services (Dalton et al., 2009; Novins et al., 1999; Samuel, 2015). To illustrate the strong association between race/ethnicity and treatment utilization, one study of detained youth found that race was the only significant predictor of mental health treatment, with White adolescents being more likely to receive treatment than Black adolescents (Shelton, 2005).

The disparity in treatment access across racial groups is particularly problematic when considering that minority adolescents are much more likely to be arrested and incarcerated than White adolescents (Towberman, 1994). Such bias results in overrepresentation of Black adolescents throughout the juvenile justice system; Black adolescents account for only 15% of the adolescent population nationwide (Sedlak & Bruce, 2010), but represent 26% of arrested youth, 31% of referrals to juvenile court, 40% of youth placed in residential facilities, and 44% of detained adolescents (Poe-Yamaga & Jones, 2007; Rawal et al., 2004). As addition evidence of bias, research shows that Black adolescents with mental illness are 6 times more likely to be placed in detention/prison than similarly-aged White adolescents with mental illness (Isaacs, 1992), whereas White adolescents are 4 times more likely to receive a mental health treatment placement (Herz, 2001). When considering gender and race together, White females DAs are most likely to obtain mental health services, whereas Black male DAs are least likely to obtain treatment (Abram et al., 2008). In fact, White females are approximately 8 times more likely than Black males, and 2.5 times more likely than Black females and White males, to receive mental health treatment post-detention (Herz, 2001).

Besides gender and race/ethnicity, age is also related to service utilization within the detained adolescent population. There appears to be a negative relationship, in that the likelihood of service utilization post-detention decreases as age increases (Aalsma et al., 2012b; Lopez-Williams, 2006). Thus, younger DAs are more likely to obtain mental health referrals, receive mental health placements, be connected to services, and utilize a variety of service types (e.g., inpatient, outpatient, family) than older DAs of similar gender or racial/ethnic background (Herz, 2001; Vander Stoep, Evens, & Taub, 1997). Current findings suggest a possible two-tiered approach within the juvenile justice

system, in which younger offenders are placed on a treatment-focused rehabilitation track and older offenders are placed on a punishment-focused incarceration track (Herz, 2001).

Another individual-level factor associated with service utilization among DAs includes criminal history. Specifically, adolescents who commit more serious and/or violent crimes (e.g., battery, use of weapon, sexual assault) are more likely to obtain referrals and to utilize treatment, compared to adolescents who commit less serious crimes (e.g., trespassing, possession of marijuana) (Paskar, 2008; Shelton, 2005; Vander Stoep et al., 1997). It has been suggested that serious offenders have higher rates of treatment services because these adolescents tend to receive heightened attention, which may include increased efforts to achieve rehabilitation through provision of treatment services (Kataoka et al., 2001). Similarly, DAs with repeat offenses (i.e., recidivists) and repeat detention stays (i.e., re-detained/incarcerated) are more likely to use mental health and substance-related treatment services than first time offenders (Kataoka et al., 2001; Lopez-Williams, et al., 2006; Vander Steoep et al., 1997), perhaps due to more opportunities during multiple contacts with the juvenile justice system to be correctly identified as having behavioral health concerns, placed in treatment services, and/or referred for community services.

Some studies indicate that DAs with mental health and/or substance-related needs are more likely to be referred and connected to treatment services (Brannan & Heflinger, 2005; Hoeve et al., 2013), resulting in higher rates of service utilization among DAs with psychiatric disorders. In contrast, other studies have failed to show a strong relationship between mental health concerns and treatment utilization (Lopez-Williams et al., 2006; Novins et al., 1999). In fact, evidence suggests that demographic factors and insurance status serve as stronger predictors of treatment utilization than actual mental health needs or diagnoses. However, conclusions about service use for DAs with mental health and substance-related needs are difficult to make because DAs are not consistently screened or identified as having needs (Cauffman, 2004; Herz, 2001). Moreover, the method in which studies gather data about treatment utilization can impact conclusions, given that studies using interviews with DAs tend to find higher rates of psychiatric disorders in conjunction with higher rates of treatment utilization (Novins et al., 1999), compared to

studies using surveys of non-detained youth (e.g., parents, detention staff) or review of records that find low rates of treatment utilization (Aalsma et al., 2015; Lyons et al., 2001; Rawal et al., 2004).

Finally, history of treatment services may play a role in treatment utilization by detained youth. Studies of help-seeking behaviors and treatment utilization (Cauce, & Srebnik, 2003; Samuel, 2015) among different adolescent populations (e.g., those with chronic medical illness, development disabilities, involvement in foster care), indicate that engagement in mental health treatment is strongly tied to prior use of services (Kates et al., 2014), particularly if the prior services were viewed as helpful, necessary, easy to access, and affordable (Abram et al., 2008). Given such findings, it is likely that DAs with a history of engagement in mental health and/or substance-related treatment prior to detention are more likely to continue using services during detention and following release from detention. The few studies to examine service utilization both pre- and post-detention among DAs support this possibility, with a significantly higher percentage of DAs with a history of treatment versus DAs without treatment engaging in community-based services upon release from detention (Hussey et al., 2007; Hussey et al., 2008; Shelton, 2005).

1.8 Timing of Treatment Services and Continuity of Care

Clearly, multiple system-level and individual-level factors impact treatment utilization among detained adolescents. The timing of treatment utilization is also crucial. While pre-detention treatment appears to be quite important, post-detention treatment may represent the most important time-point for helping DAs manage mental health concerns, as well as successfully reintegrate into the community and avoid recidivism (Riley, 2014; Samuel, 2015). Unfortunately, a limited number of studies have explored service use among DAs upon reentry into the community, with prevalence estimates ranging from about 6% (Teplin et al., 2005) to about 40% (Trupin, Turner, Stewart, & Wood, 2004). In my meta-analysis, prevalence rates for treatment utilization were 27.7% for any treatment utilization, 34.3% for mental health treatment utilization, and 29.0% for substance-related treatment utilization, with decreasing service use as time

in the community increased. In addition to poor utilization of community-based services, longitudinal studies also show large gaps in the receipt of treatment services (Hussey et al., 2008), as well as high rates of recidivism and re-incarceration (Paskar, 2008; Ryan et al., 2013). Based on such findings, it appears that DAs may be failing to obtain services, terminating early from services, and/or experiencing large gaps in treatment services over time (Bullis, Yovanoff, Mueller, & Havel, 2002). DAs are not receiving continuity of care or consistent receipt of services across settings and over time, which contradicts the established guidelines for evidence-based interventions like MST and FFT (Henggeler, & Sheidow, 2012; Lipsey, 2009; Lipsey, 2011). Moreover, discontinuity of care and treatment dropout have been linked to numerous negative outcomes for adolescents and the mental healthcare system, including increased mental health impairment, more severe criminal activity, and increased financial burden on the healthcare system (Corning & Malofeeva, 2004; Luk, Staiger, Mathai, Wong, Birleson, & Adle, 2001; Oruche, Downs, Holloway, Draucker, & Aalsma, 2014).

Given the negative outcomes linked to treatment dropout and discontinuity, it is imperative that researchers examine these issues among the DA population. Since few studies have examined service use over time, little is known about the factors related to treatment utilization and continuity once DAs return to the community. Similar to other adolescent populations, early termination of treatment and/or gaps in treatment services may occur due to a variety of reasons (Abram et al., 2008; Hoeve et al., 2013). As mentioned previously, DAs may experience system-level barriers related to lack of insurance coverage or provider bias (Cuellar et al., 2005; Gupta et al., 2005); other potential factors may include transportation difficulties, lack of knowledge about how/where to obtain services, lack of available providers, moving outside of provider network, or placement in a long-term correctional facility (Abram et al., 2008; Chapman et al., 2006; Kazdin & Mazurick, 1994). Alternatively, disruptions in treatment services may stem from DAs intentionally dropping out or avoiding services due to negative attitudes about treatment, distrust in mental health providers, inaccurate beliefs that one does not need treatment, and/or embarrassment of obtaining treatment (Abram et al., 2008; Moore, McArthur, & Saunders, 2013; Samuel, 2015). Interestingly, when

interviewed about mental health treatment, DAs endorsed prominent mental health stigma and inaccurate beliefs that their mental health and substance-related problems would simply "go away" without the use of treatment services (Abram et al., 2008).

Given the high rate of recidivism and re-incarceration within the DA population, poor continuity of treatment services may be partially explained by DAs' frequent placements in detention centers or prison facilities. No study (that I have found) has specifically examined whether DAs intentionally drop out of community-based services or are forced to terminate services in response to placement in detention/prison or other treatment barriers. While it is likely a combination of several factors, the important point is that many DAs are not receiving mental health or substance-related services post-detention and are failing to benefit from the positive impacts of community-based mental health interventions (Hoeve et al., 2013; Lyons et al., 2003).

1.9 Limitations of the Literature

Despite growing recognition that detained youth has significant mental health needs and disproportionately high rates of psychiatric disorders (Shufelt & Cocozza, 2006; Yazzie, 2011), there are serious gaps in the literature that prevent full understanding of how these needs are being met with treatment services. One of the biggest limitations of the current literature is the lack of data about treatment utilization beyond prevalence rates. Currently, most studies only report prevalence estimates (i.e., whether DAs ever obtained services), with little data about quantity, frequency, or intensity of treatment services. Thus, no thorough examination (that I have found) has studied the specific characteristics of service use, such as timing of services (e.g., pre-, during, post-detention), number of services (e.g., mean, range, length of stay), and frequency between services (e.g., days between sessions) (Kataoka et al., 2001; Shelton, 2005). Without information about quantity of services, it is difficult to determine whether DAs are obtaining treatment that satisfies the established guidelines for evidence-based interventions like MST or FFT (Henggeler & Sheidow, 2012). In addition, it is possible that one group of DAs may have higher prevalence rates for treatment utilization (e.g., White DAs compared to Black DAs), but may actually utilize

less number of services. Such findings could lead to new conclusions about the intersection between individual-level factors (e.g., gender, race) and treatment utilization, but such conclusions cannot be made given the current state of the literature.

With regards to intensity of service use, evidence suggests that a small percentage (25%-35%) of DAs qualify as intensive service users who are receiving most of the mental health services provided to the population (Cauffman, Scholle, Mulvey, & Kelleher, 2005; Pumariega et al., 1999). Research within the psychiatric rehabilitation literature suggests that high service users negatively impact the quality and effectiveness of the mental healthcare delivery system by using a disproportionate amount of resources, services, provider time, etc., thereby resulting in inferior treatment for the rest of the population. The DA population may be experiencing similar issues, but more research is needed to quantify the existence of intense service users and their use of services in relation to the entire detained adolescent population.

The dearth of longitudinal research represents another serious limitation with the current literature. Research focused on mental health treatment utilization among DAs has been predominately based on cross-sectional studies, which yield snap-shots of service use at one point in time, but no information about patterns of service use over time. Such estimates do not capture the scope and/or magnitude in which DAs are likely being overlooked and underserved, particularly regarding whether their needs are being met at different time points within the juvenile justice system (e.g., during detention, within 1 year post-detention). Further, the majority of the cross-sectional studies have examined mental health and/or substance-related services *prior* to detention, rather than treatment utilization upon community reentry. The few studies to examine treatment services after release from detention have relied on relatively short-term follow-up periods of 1-2 years. To my knowledge, only a few studies (Paskar, 2008; Teplin et al. 2012) have tracked detained youth for three or more years. Additionally, longitudinal studies have generally examined community-based outpatient services (Aalsma et al., 2012b; Bullis et al., 2002; Trupin et al., 2004), with limited exploration of alternative, more intensive treatment services like visits to emergency departments of medical centers or long-term stays within inpatient facilities.

Finally, perhaps due to the limited number of longitudinal studies, the literature has largely overlooked crucial issues related to treatment dropout and continuity of care over time (Abram et al., 2008; Gupta et al., 2005). As a result, there is a poor understanding of the time-point in which DAs typically drop out of treatment, the average number of sessions preceding treatment dropout, potential reasons for dropping out of treatment, the prevalence of gaps between services, potential reasons for treatment gaps, and the characteristics of adolescents who tend to remain in treatment versus drop out from treatment. Examination of such issues is crucial for identifying system-level problems, as well as developing policies and programs to retain DAs in treatment, prevent treatment gaps, and ensure that positive treatment outcomes like improved mental health symptoms, reduced recidivism, and successful reintegration occur.

1.10 Purpose of Study

Despite limitations in the literature, studies consistently indicate that rates of mental health and substance-related treatment utilization among the detained adolescent population are quite low compared to the high rates of psychiatric disorders (Paskar, 2008; Shelton, 2005; Teplin et al., 2005). In part, these low rates are due to various treatment barriers, such poor availability of services, provider attitudes/behaviors, demographic factors, criminal history background, and availability of services. As a result, there appears to be a significant disconnect between the identification of DAs with mental health concerns, connection of DAs to treatment services, and engagement of DAs in appropriate post-detention services within the community (Hoeve et al., 2013; Mulvey et al., 2007; Rogers et al., 2001). Given the gaps in the literature, the scope of this problem is not well understood. The literature offers mostly cross-sectional studies that do not adequately examine the characteristics (e.g., prevalence, quantity, intensity) of treatment services for DAs upon release from detention, as well as over time (Mulvey et al., 2007). The few longitudinal studies that exist have not adequately measured treatment utilization among DAs over long periods of time, preventing full understanding of service utilization patterns, continuity of care patterns, and potential differences in treatment services between groups of DAs (Herz, 2001; Mulvey et al., 2007).

In response to the gaps in the literature, I conducted this exploratory, longitudinal study of mental health and substance-related treatment utilization among a large sample of detained youth experiencing their first detention stay at some point during 1998 and 2011. The study tracked DAs for fourteen years, in order to better understand the prevalence of post-detention treatment at different time points, the characteristics of services use over time, the role of individual-level factors (e.g., demographics, criminal history) in treatment utilization, the characteristics of treatment dropouts, continuity of care patterns, and the complex relationships between treatment utilization and outcomes like recidivism and re-incarceration (Aalsma et al., 2012b; Trupin et al., 2011). Ultimately, conclusions from this study are intended to expand the literature and identify gaps and disparities in treatment services for DAs, so that appropriate recommendations can be made to ensure positive outcomes for the detained adolescent population.

1.11 Study Aims and Research Questions

The specific aims of the study were as follows: 1) Conduct a cross-sectional exploration of post-detention treatment utilization (within two years of detention release), 2) Examine group differences in post-detention treatment utilization across demographic groups, mental health groups, and criminal history groups, 3) Identify predictors of post-detention treatment utilization (within two years of detention release), and 4) Examine longitudinal patterns of post-detention treatment utilization (e.g., time to first service, time to dropout) among detained adolescents. Given the limited number of longitudinal studies that currently provide data related to treatment utilization within the DA population, specific hypotheses were not developed or tested; rather, this research was exploratory in nature. In lieu of hypotheses, a series of research questions associated with study aims were proposed and subsequently quantified, assessed, and answered to achieve study aims. The research questions associated with study aims were as follows:

1.11.1 Research Questions for Aim 1

1. Prevalence of treatment utilization. What are the cross-sectional prevalence rates for post-detention treatment utilization at different points in time among detained adolescents?
    a. Any treatment services. What is the prevalence of post-detention treatment utilization?
        (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.
        (2) Treatment services were analyzed within the following post-detention follow-up time frames: 2-years, 18-months, 1-year, 6-months, and 1-month.
    b. Outpatient services. What is the prevalence of post-detention outpatient treatment utilization?
        (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.
        (2) Treatment services were analyzed within the following post-detention time frames: 2-years, 18-months, 1-year, 6-months, and 1-month.
    c. Non-outpatient services. What is the prevalence of post-detention non-outpatient treatment utilization?
        (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.
        (2) Treatment services were analyzed within the following post-detention time frames: 2-years, 18-months, 1-year, 6-months, and 1-month.

2. Characteristics of treatment services. What are the characteristics (e.g., amount, frequency, length) of treatment services utilized among detained adolescents within two years post-detention?
    a. Quantity of treatment services. What is the total number (mean and range) of treatment services utilized within two years post-detention?
        (1) Treatment services were subdivided and analyzed across the three treatment types (i.e., mental health services, substance-related services, and either/both services) and two treatment settings (i.e., outpatient and non-outpatient).
    b. Frequency of outpatient treatment services. How frequently (in days) are outpatient sessions utilized per month? How many days (mean and range) elapses between outpatient sessions?
        (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.
    c. Length of stay of inpatient treatment services. What is mean length of stay in days (number and range) for inpatient hospitalizations?
        (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.
3. Intensity of treatment services. What is the intensity of treatment utilization among detained adolescents within two years post-detention?
    a. Service user type. For the three treatment types (i.e., mental health services, substance-related services, and unknown/both services), what proportion of DAs are: non-users, users of one service type, users of two service types, or users of all three services types?
    b. Service user setting. For the three treatment settings (i.e., outpatient, inpatient, and emergency department), what proportion of DAs are: non-users, users of one service setting, users of two service settings, or users of all three services settings?

c. Outpatient user intensity. Based on Cauffman and colleagues (2005) intensity of service categories for outpatient service utilization, what proportion of DAs are: non-users, low users (1-2 sessions), low-to-moderate service users (4-7 sessions), moderate users (8-12 sessions), moderate-to-high users (13-17 sessions), high users (18-22 sessions), or extreme users (≥23 sessions)?

d. Non-outpatient user intensity. What proportion of DAs are: non-users, low users (1 visit/stay), low-to-moderate users (2 visits/stays), moderate users (3-4 visits/stays), high users (5-6 visits/stays), or extreme users (≥7 visits/stays)?

4. Treatment dropouts and treatment gaps. What are the prevalence rates for outpatient treatment dropout (i.e., termination within 1-3 sessions) and treatment gaps (i.e., 46-120 days between sessions) among detained adolescents within two years post-detention?

   a. Treatment dropouts. What is the prevalence of dropout from outpatient treatment within two years post-detention among detained adolescents?

      (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.

   b. Reasons for dropouts. How many dropouts may be explained by the following events occurring during the same month of dropout: placement in detention or prison, stay in inpatient hospital, or no explanation (i.e., appears to be true dropout)?

   c. Treatment gaps between services. What is the prevalence of gaps between outpatient treatment services within two years post-detention among detained adolescents?

      (1) Treatment services were subdivided and analyzed for the following three treatment types: mental health services, substance-related services, and either/both services.

d. Reasons for treatment gaps between services. For adolescents with ≥1 treatment gap(s), how many gaps may be explained by the following events occurring during the same month of the gap: placement in detention or prison, stay in inpatient hospital, or no explanation (i.e., appears to be true gap)?

1.11.2 Research Question for Aim 2

1. Treatment services by groups. Does post-detention treatment utilization significantly differ across groups of detained adolescents? Questions 1-4 of Aim 1 were re-run to examine whether prevalence rates, service characteristics, intensity of services, dropout, and treatment gaps within two years post-detention significantly differed across the following groups:
    a. Demographic groups: Gender (male vs. female), race (Black vs. White), and age (younger, mid-age, and older).
    b. Mental health groups: Positive screen on Massachusetts Youth Screening Instrument-2nd Edition (yes/no), disorder type (mental disorder, substance-related disorder, and comorbid disorder), and pre-detention treatment (yes/no).
    c. Criminal history groups: Violent offender (yes/no), recidivist (yes/no), and re-detained/incarcerated (yes/no).

1.11.3 Research Question for Aim 3

1. Predictors of service use. What are the significant predictors of treatment utilization within two years post-detention among detained adolescents? The following predictors and outcomes were examined:
    a. Predictors: Demographic variables (gender, race, age), criminal history variables (number of pre-detention arrests, length of detention stay, charge severity, number of charges, violent offender [yes/no], Risk Assessment Inventory score), and mental health variables (positive screen on MAYSI-2 [yes/no], conduct-related disorder [yes/no], non-conduct mental disorder

[yes/no], substance-related disorder [yes/no], number of disorders, pre-detention outpatient treatment [yes/no], and pre-detention non-outpatient treatment [yes/no]).

b. Outcomes: Any treatment, mental health treatment, substance-related treatment, either/both treatment, outpatient treatment, and non-outpatient treatment.

c. Sub-analyses: Cohort one (i.e., detained during 1998-2005) versus cohort two (i.e., detained during 2006-2011).

1.11.4 Research Questions for Aim 4

1. Patterns of service utilization. What are the patterns of service utilization over time among detained adolescents?
    a. Time to first treatment utilization. What is the median length of time (in days) to first treatment utilization post-detention?
    b. Time to termination from outpatient treatment. What is the median length of time (in days) involved in continuous outpatient treatment post-detention?
2. Group differences in treatment utilization. How does post-detention service utilization patterns over time differ across DA groups? Question 1 of Aim 4 was re-run to examine whether patterns significantly differed across the following groups:
    a. Demographic groups: Gender (male vs. female), race (Black vs. White), and age (younger, mid-age, and older).
    b. Mental health groups: Positive screen on Massachusetts Youth Screening Instrument-2nd Edition (yes/no), disorder type (mental disorder, substance-related disorder, and comorbid disorder), and pre-detention treatment (yes/no).
    c. Criminal history groups: Violent offender (yes/no), recidivist (yes/no), and re-detained/incarcerated (yes/no).

3. Predictors of time to first treatment utilization. What are the significant predictors of time to first post-detention treatment utilization? The following predictors and outcomes were examined:
    a. Predictors: Demographic variables (gender, race, age), criminal history variables (number of pre-detention arrests, length of detention stay, charge severity, number of charges, violent offender [yes/no], re-detained/incarcerated [yes/no], Risk Assessment Inventory score), and mental health variables (positive screen on MAYSI-2 [yes/no], conduct disorder [yes/no], non-conduct mental disorder [yes/no], substance-related disorder [yes/no], number of disorders, pre-detention outpatient treatment [yes/no], and pre-detention non-outpatient treatment [yes/no]).
    b. Outcomes: Time to first treatment, time to first mental health treatment, time to first substance-related treatment, time to first either/both treatment, time to first outpatient treatment, and time to first non-outpatient treatment.
    c. Sub-analyses: Cohort one (i.e., detained during 1998-2005) versus cohort two (i.e., detained during 2006-2011).
4. Predictors of treatment termination. What are the significant predictors of time to terminate from post-detention outpatient treatment? The following predictors and outcomes were examined:
    a. Predictors: Demographic variables (gender, race, age), criminal history variables (number of pre-detention arrests, length of detention stay, charge severity, number of charges, violent offender [yes/no], re-detained/incarcerated [yes/no], Risk Assessment Inventory score), and mental health variables (positive screen on MAYSI-2 [yes/no], conduct-related disorder [yes/no], non-conduct mental disorder [yes/no], substance-related disorder [yes/no], number of disorders, pre-detention outpatient treatment [yes/no], and pre-detention non-outpatient treatment [yes/no]).

b. Outcomes: Time to termination from any outpatient treatment, time to termination from mental health outpatient treatment, time to termination from substance-related outpatient treatment, and time to termination from either/both outpatient treatment.
c. Sub-analyses: Cohort one (i.e., detained during 1998-2005) versus cohort two (i.e., detained during 2006-2011).

CHAPTER 2. METHOD

2.1 Data Abstraction and Data Linking

Data for this study were abstracted from two primary electronic databases: the Marion County juvenile justice system (QUEST database) and the Regenstrief Medical Record System. The Marion County Juvenile Justice system (QUEST) was chosen as a primary data source because it contains the case files/records of all adolescents in contact with the juvenile justice system, including youth who are arrested, detained, waived to adult court, and/or committed to long-term prison. QUEST did not start electronically storing data until 1998, so information prior to that date was not available for this study. Altogether, records of all adolescents with a history of being arrested and/or detained at least once between 1998 and 2011 were abstracted from QUEST.

The Regenstrief Medical Record System (RMRS) served as the second main data source for the study. RMRS was specifically chosen because it serves as one of the largest and oldest medical records systems in existence, with treatment records for over 1.5 million patients dating back to 1973 (McDonald et al., 1999). The RMRS and its next generation successor, the Indiana Network for Patient Care (INPC), connects over 90% of hospital-system care in the Indianapolis area, including Wishard Health Services since 1972, Indiana University Hospital and Riley Hospital for Children since 1989, Methodist Hospital since 1995, Community Hospital since 1999, St. Vincent Hospital since 2000, and St. Francis Hospital since 2002. Furthermore, all Indiana Medicaid data from 2001 have been successfully transferred and entered into INPC. Thus, the RMRS contains the medical history data for most areas and sectors of the Indianapolis population and likely contains the medical records for the majority of detained adolescents listed within the QUEST system.

Due to issues related to confidentiality and size of data files, the Marion County Juvenile Justice system (QUEST), Regenstrief Medical Record System (RMRS), and Indiana Network for Patient Care (INPC), are stored and managed by Regenstrief Institute, Inc., a private, non-profit research organization affiliated with the Indiana University School of Medicine. A team of data analysts from Regenstrief Institute, Inc. linked the case records for all detained adolescents within QUEST to the medical records within RMRS and INPC using the probabilistic linkage software Recmatch (Grannis, Overhage, Hui & McDonald, 2003). Recmatch linked files using a multi-step probabilistic matching process. First, the parameters for the file search were limited to year of birth, so that only files of individuals born between 1984 and 2001 (i.e. adolescents ≤18 years during detention) were included. Second, a data analyst formatted unique participant identifiers (e.g., social security number, last name, middle name, first name, date of birth, gender, and race) from QUEST and RMRS/INPC databases into a consistent fashion. These files were entered into the RecMatch software and matched based on the unique participant identifiers (Grannis et al., 2003).

Prior to linking, the original Marion County Juvenile Justice system contained the case records of approximately 50,000 juvenile justice-involved youth and the Regenstrief Medical Record System and Indiana Network for Patient Care contained the medical files of over 300,000 youth (United States of America Census Bureau). Upon completing the matching process outlined above, the RecMatch output yielded 74,835 pairs or matches between QUEST records and medical records, consisting of 42,148 unique QUEST individuals and 74,823 unique RMRS/INPC individuals. On average, each QUEST individual was linked to 1.78 RMRS/INPC individuals, due to either data entry errors made by data analysts or software linking errors (i.e. inability of RecMatch to recognize that files should be linked). To illustrate a software linking error, a youth named "John Doe" in QUEST may be linked by RecMatch to two files in RMRS/INPC, one of a youth named "John Doe" and another named "John A. Doe." The two files in RMRS/INPC are most likely the same person and should be linked together, but the RecMatch software errs on the side of caution and keeps the files separate, rather than incorrectly joining two different people. RecMatch is not able to recognize that these files belong to the same

person and incorrectly creates two pairs of files for John Doe. To address data linking problems with RecMatch, the software program RecFam was used to analyze the pairs of files (Grannis et al., 2003). RecFam reduced the 74,835 pairs to 40,015 "families" of pairs, meaning the program deduced that the 74,835 pairs reflect 40,015 unique individuals. A data analyst from Regenstrief Institute, Inc. validated RecFarm results by reviewing the RecFam "families" of pairs and re-grouped pairs when necessary. This final step resulted in the identification of 41,798 unique individuals with retrievable data from both QUEST and RMRS/INPC databases.

As part of two larger grants examining behavior health among juvenile justice-involved youth (i.e., HRSA/MCHB R40MC08721 and HRSA/MCHB T7100008), data analysts from Regenstrief Institute, Inc. were provided instructions regarding data abstraction. De-identified datasets containing requested data were made available on a private password-protected server accessible to members of Dr. Matthew Aalsma's research team, including me. For the purposes of this study, I accessed four, separate Statistical Analysis System (SAS) files containing data regarding the following: 1) Arrest history, detention stays, and recidivism, 2) Prison stays, 3) Mental health and substance-related needs/diagnoses, 4) Treatment services (See next section for more details). To maintain confidentiality, SAS datasets did not contain the names, addresses, or insurance policy numbers of individuals; rather, each unique individual was assigned a file number that served as the participant's primary identification number. All datasets contained the files number for each potential participant, thereby enabling me to use the file number as the key variable to link and merge the four SAS datasets into one primary Statistical Package for the Social Sciences-Version 22.0 (SPSS) dataset.

2.2 Data Coding

Data abstracted from the Marion County Juvenile Justice system and the Regenstrief Medical Record System databases were reviewed and coded according to a fixed protocol with coding rules for all variables. Please see Appendix Table A.1 for codebook containing list of variables and coding rules. Overall, variables were categorized and coded within the following four broad domains: 1) Demographics, 2)

Criminal history, 3) Mental health and substance-related needs/diagnoses, and 4) Treatment services. The following briefly describes the key variables within each coding domain.

Demographic variables. Data coded within this domain included participants' date of birth, date of death (if applicable), gender, race/ethnicity, age upon intake of first detention stay, and insurance status. With the exception of date of death and insurance status, QUEST served as the primary source of information for these variables. For race/ethnicity, participants were coded as American Indian/Alaskan, Asian/Pacific Islander, Black/African American, Non-white Hispanic, Multi-racial, White, or Other. Based on work by Teplin and colleagues (2006), age was coded into three age cohorts: younger DAs (age 11-13), mid-age DAs (age 14-15), and older DAs (age 16-18). The insurance status for all participants was coded as private insurance, Medicaid/Medicare, Wishard Advantage, no insurance/self-pay, workers' compensation, and unknown/missing.

Criminal history variables. Data abstracted from QUEST and coded within this domain included information pertaining to referrals, charges, detention stays, prison stays, recidivism, and criminal-related risk (see Appendix Table A.1 for more details). Referrals were defined as any contacts or arrests within juvenile justice system (Bureau of Justice Statistics, 2015); variables were coded according to date of first referral with the juvenile justice system, age at first referral, referral prior to first detention stay (yes/no), and number of referrals prior to first detention stay. Criminal charges were defined as formal accusations of crime made by a governmental authority, but not necessarily convictions of these crimes (Bureau of Justice Statistics, 2015). Criminal charges were coded according to type of charge (e.g., Criminal Trespass, Theft, Possession of Marijuana), level of charge (e.g., Felony, Misdemeanor), class of charge (e.g., A, B, C), violence-related charge (e.g., Battery, Rape, Kidnapping; yes/no), and referring agency making charge (e.g., Indianapolis police department, Marion County sheriff). The most severe charge (out of all charges) was rated on a severity scale of 1 to 5, with 1 = status offense/probation violation, 2 = non-violent misdemeanor, 3 = violent misdemeanor, 4 = non-violent felony, and 5 = felony. Additionally, total number of

charges and whether the adolescent was a violent offender (yes/no) at time of first detention were coded for each participant. It should be noted that all charges associated with a participant's first detention stay were coded within this section. Additional charges following first detention stay were coded under recidivism.

Regarding detention stays, variables associated with first detention stay were coded according to date of entry, date of release, length of stay (in days), reason for stay (e.g., Outright arrest, Probation violation, Warrant arrest), and reason for release (e.g., Released on home detention, Released to parent, Released to community adjustment). As part of a sub-analysis, the year in which participants were first detained was coded into two year cohorts: cohort one (detained during 1998 – 2005) and cohort two (detained during 2006 – 2011). If participants had more than one detention stay, each subsequent detention stay was coded according to date of entry, date of release, length of stay, and timing (in days) since release from first detention. Other detention-related variables coded within this domain included re-detained (yes/no), timing of second detention (e.g., within 2 weeks, within 1 month), number of detention stays within two years of first detention, and total number of detentions. Similar to detention stays, all prison stays within DOC facilities were coded by date of entry, date of release, length of prison stay (in days), and timing since release from first detention stay. The total number of prison stays was abstracted and coded; participants were also coded as incarcerated within two years of first detention (yes/no) and incarcerated at any time during study follow-up (yes/no).

With regards to recidivism, variables were coded according to re-arrest/new charge within 6 months post-detention (yes/no), type of new charge, level of new charge (e.g., Felony, Misdemeanor), severity of new charge (on scale of 1-5), number of distinct recidivism events, and recidivism rate (e.g., number of recidivism events out of total number of detentions). Finally, participants' scores on the Risk Assessment Inventory (RAI) were coded as a measure of criminal-related risk (i.e., likelihood to recidivate). Total RAI score ranging from 0 to 24 were abstracted, with higher scores representing higher risk. Based on these scores, participants were coded as low-risk (i.e., scores of 0-5 for males; 0-7 for females), medium-risk (i.e., scores of 6-12 for males; 8-13 for

females), and high-risk (i.e., scores of ≥13 for males; ≥14 for females). (Please see Measures section below for more information about the RAI and its scoring protocol).

Mental health variables. Data coded within this domain included information pertaining to participants' mental health needs, mental disorders, and substance-related disorders. The mental health needs of participants were measured via the Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2), a self-report screener designed to identify mental health and substance-related concerns among juvenile justice-involved youth (Grisso & Barnum, 1998). Total scores and the seven subscales scores from the MAYSI-2 were abstracted from QUEST, with higher scores indicating higher mental health and/or substance-related needs. Scores associated with each subscale were coded as falling in the caution range (yes/no), as well as the warning range (yes/no). An adolescent was coded as having a positive screen (yes/no) on the MAYSI-2 if his/her suicidal ideation subscale score fell in the caution or warning range or ≥2 subscales fell in the caution or warning range (Grisso, Barnum, Fletcher, & Peuschold, 2001). (Please see Measures section below for more details).

Contained with RMRS and IPN databases, the International Classification of Diseases and Related Health Problems–Ninth Revision (ICD-9) codes for mental disorders and substance-related disorders were abstracted. Based on these codes, participants were coded as having any disorder(s) (yes/no), any mental disorder(s) (yes/no), a conduct disorder(s) (yes/no), a non-conduct mental disorder(s) (yes/no), any substance disorder(s) (yes/no), and comorbid for both types of disorders (yes/no). In addition, all participants were coded according to disorder type (e.g., just mental disorder(s), just substance-related disorder(s) and number of disorders. Mental disorders were coded according to the following classifications: conduct-related disorders (e.g., conduct disorder, oppositional defiant disorder), mood disorders (e.g., major mood disorder, bipolar disorder), anxiety disorders (e.g., generalized anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder), attention-deficit/hyperactivity disorder, adjustment disorders or somatization disorders, psychosis-related disorders (e.g., schizophrenia, delusional disorder), and other disorders (e.g., eating disorder, sexual dysfunctions, sleep wake disorder). Substance-related disorders

were coded according to the following classifications: alcohol-related disorders (e.g., alcohol use disorder, alcohol intoxication), cannabis-related disorders (e.g., cannabis use disorder, cannabis intoxication), drug-related disorders (e.g., inhaling use disorder, opiate use disorder, stimulant use disorder), and other disorders (e.g., fetal alcohol syndrome, using drugs during pregnancy). Finally, the date of diagnosis was derived from medical records, so that variables could be coded according to date of diagnosis (i.e., date in which ICD-9 code first appeared in record) and timing of diagnosis (e.g., pre-, during, or post-detention).

Treatment services. Data contained within the medical records of the Regenstrief Medical Records Systems served as the primary source of information for this domain. All treatment services were abstracted and coded according to a multi-step process. First, treatment services were coded according to service type. Specifically, any treatment service associated with ICD-9 codes for mental disorders was coded as mental health, any treatment service associated with ICD-9 codes for substance-related disorders was coded as substance-related, and any treatment service associated with ICD-9 codes for both mental disorders and substance-related disorders or not associated with any ICD-9 codes was coded as either/both (i.e., not clear if treatment focused on mental health concerns, substance-related concerns, or both concerns). Second, treatment services were coded for timing in relation to first detention stay; thus, treatment services were coded as pre-detention, during detention, or post-detention. Third, treatment services were coded according to the following settings: outpatient treatment in a community-based center, inpatient stay in hospital/residential facility, or visit to the emergency department (ED) for behavioral health concerns. After determining that a relatively small number of DAs utilized inpatient treatment (n = 1396, 14.5%) and ED visits (n = 1891, 19.5%), compared to outpatient treatment (n = 6437, 66.61%), inpatient treatment and ED visits were subsequently collapsed into one variable coded as non-outpatient treatment. Thus, all treatment services utilized by participants were coded according to type (i.e., mental health, substance-related, either/both), timing (i.e., pre-, during, or post-detention), and setting (i.e., outpatient, non-outpatient).

Once treatment services were coded, numerous treatment-related variables were derived and coded. Specifically, participants were coded as treatment users (yes/no), mental health treatment users (yes/no), substance-related treatment users (yes/no), either/both treatment users (yes/no), pre-detention users (yes/no), during detention users (yes/no), post-detention users (yes/no), outpatient users (yes/no), and non-outpatient users (yes/no). Participants were also coded by service type user (e.g., just mental health, just substance use, two types) and service setting user (e.g., just outpatient, two types, all three types). (See Appendix Table A.1 for more details). With regards to non-outpatient treatment utilization, coded variables included prevalence rates for different groups of DAs (e.g., males, females, younger), number of non-outpatient service visits, length of stay (in days) for inpatient services, and time (in days) between non-outpatient services. Intensity of non-outpatient treatment utilization within two years post-detention was coded according to the following intensity levels: non-user, low user (1 visit/stay), low-to-moderate user (2 visits/stays), moderate user (3-4 visits/stays), high user (5-6 visits/stays), and extreme user (≥7 visits/stays).

Similarly, outpatient treatment utilization was coded for prevalence rates of different groups of DAs, number of total outpatient sessions, time (in days) between sessions, and number of sessions per month. Based on Cauffman and colleagues (2005) intensity of service categories for outpatient treatment, intensity of outpatient treatment utilization within two years post-detention was coded according to the following intensity levels: non-user (0 sessions), low user (1-2 sessions), low-to-moderate service user (4-7 sessions), moderate user (8-12 sessions), moderate-to-high user (13-17 sessions), high user (18-22 sessions), and extreme user (≥23 sessions). Participants were also coded as outpatient dropouts (yes/no) if they terminated outpatient treatment within 1-3 sessions, with no return to treatment for ≥24 months (Luk et al., 2001). Potential reasons to explain outpatient dropouts were coded according to one of the following events occurring during the same month of treatment dropout: placement in detention or prison, placement in an inpatient facility, or no placement (i.e., no clear explanation). Finally, participants were coded as having a gap in outpatient treatment (yes/no) if they experienced an absence of treatment for 45-120 days between two consecutive sessions

of the same outpatient treatment type. Potential reasons for gaps between outpatient treatment sessions were coded using the same categories as reasons for outpatient dropouts.

2.3 Measures

Risk Assessment Inventory (RAI). The RAI represents a basic tool used during the risk screening process, which typically occurs prior to or upon entry into a detention center (Steinhart, 2006). Trained evaluators rate an adolescent using a written checklist of criteria, in which points are assigned for different criminal history domains; domains include most serious offense, additional offenses, supervision status (e.g., probation, electronic monitoring), pending petitions/disposition, warrant history, prior offenses, mitigating factors (e.g., school, family support), and aggravating factors (e.g., no community ties, runaways, prior escapes). Points are summed to produce a total score that represents overall criminal-related risk, or likelihood to recidivate. Scores can then be used to categorize adolescents into low-risk, medium-risk, and high-risk offenders (Latessa, Lovins, & Makarios, 2013). Since the Risk Assessment Inventory is intended to suit local needs, this instrument tends to vary in scope, format, and scoring criteria across sites (Steinhart, 2006). Therefore, members of the Indiana Risk Assessment Task Force at the Indiana Judicial Center coordinated with the University of Cincinnati Center for Criminal Justice Research to examine, validate, and norm the risk assessment process for juvenile justice-involved youth in Indiana (Latessa et al., 2013). The following standards were established to categorize risk: scores of 0-5 for males and 0-7 for females represent low-risk, scores of 6-12 for males and 8-13 for females represent medium-risk, and scores of $\geq$13 for males and $\geq$14 for females represent high risk.

In addition to level of risk, an RAI score serves as an objective standard to determine placement for an arrested youth, such as placement in a secure juvenile justice facility, non-secure alternative program (e.g., mental health treatment facility), or home release. The use of standardized RAI scores has proven effective in reducing subjective, biased placement decisions, as well as decreasing total admissions to juvenile justice facilities and curbing the costs and liabilities associated with detaining adolescents who

do not require a stay in a secure detention facility (Steinhart, 2006). Since the Marion County juvenile detention center (i.e., the site for this study) does not follow specific cut-off criteria to determine appropriate placement for adolescents, the total RAI score was used as a general measure of criminality, with higher scores indicating more severe criminal activity. It should be noted that the RAI was not incorporated into the risk screening process at the Marion County juvenile detention center until 2006, so only adolescents detained between 2006 and 2011 obtained RAI scores.

Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2). The MAYSI-2 is a 52-item T/F mental health screener designed to identify juvenile-justice involved youth with special mental health needs (Grisso & Barnum, 1998). The scale is divided into seven subscales: Alcohol/Drug Use, Angry/Irritable, Depressed/Anxious, Suicidal Ideation, Somatic Complaints, Traumatic Experiences, and Thought Disturbance. Subscale scores are interpreted as falling in the normal, caution, or warning range. Individuals are considered to screen positive on the measure if the suicidal ideation subscale score falls within the caution or warning range or at least two subscales fall in the caution or warning range (Grisso et al., 2001). A positive screen on this scale is not interpreted as an official diagnosis, but as an indication of serious mental health problems and likely treatment needs. The instrument has been normed and validated for juvenile-justice involved youth, and has good internal consistency and convergent validity (Archer, Simonds-Bisbee, Spiegel, Handel, & Elkins, 2010). Since the legal mandate requiring the use mental health screenings in all detention facilities in Indiana did not occur until 2006, only adolescents detained between 2006 and 2011 completed the MAYSI-2 upon intake into the Marion County juvenile detention center.

International Classification of Diseases and Related Health Problems-9th Revision (ICD-9). The International Classification of Diseases and Related Health Problems is a standardized, worldwide classification system of health problems that contains codes for diseases, disorders, symptoms, and abnormal findings (Center for Disease Control and Prevention). ICD-9 codes, which include codes for mental disorders and substance-related disorders, are consistently used in all healthcare facilities and allow for direct comparison of individuals over time and across settings (Center for Disease Control and

Prevention). In contrast to the delayed implementation of the RAI and MAYSI-2 that did not occur until 2006, ICD-9 codes were used throughout the entire time frame, thereby eliminating any potential problems related to inconsistent coding for disorders across participants.

2.4 Recruitment and Participants

Since de-identified data from participants' case records were gathered via electronic databases, no direct recruitment of participants or informed consent process was conducted. Participants were required to meet the following inclusion criteria: 1) 11-18 years of age upon entry into a juvenile justice facility, 2) at least one stay at a juvenile justice facility (i.e., detention center or prison facility) due to being arrested for a criminal offense, 3) medical records data within the Regenstrief Medical Record System, and 4) electronic records within the Marion County Juvenile Justice system. Adolescents were excluded from the study if they were involved in the justice system for non-criminal offenses (e.g., custody dispute, victim of child neglect, or witness) or were arrested, but not incarcerated for the arrests. Participants were not required to have been charged and/or convicted of the arrest(s) that resulted in their detention, nor were there any exclusions associated with criminal history (e.g., prior contact with the juvenile justice system, number of prior contacts) or mental health status (e.g., severe mental illness, history of prior treatment).

As mentioned in the Data Sources and Data Linking section above, the RecMatch process successfully yielded a total of 41,798 individuals. Of these potential participants, a total of 416 (1.0%) individuals were excluded due to being outside the required age range, 21,866 (52.3%) individuals were excluded because they had contact with the juvenile justice system but were not detained or incarcerated, and 2,126 (5.1%) individuals were excluded for having blank medical records with no information about mental health status or treatment utilization. After excluding these individuals, a total of 17,398 (41.6%) detained adolescents remained in the sample. Though not initially proposed as part of the inclusion criteria, an additional 7,734 (18.5%) adolescents with private insurance or no medical insurance were subsequently removed from the sample

because treatment utilization data for these individuals were largely missing in a non-random and biased manner. Since treatment utilization represents the primary outcome of interest for this study, including these individuals would have likely resulted in biased findings and increased chances of Type 1 and Type 2 errors (Yoo, 2010); thus, these adolescents were removed prior to data analysis. The final sample therefore contained a total of 9,664 detained adolescents with Medicaid insurance who met full inclusion criteria for the study.

2.5 Study Setting

Given that data was derived from the Marion County Juvenile Justice system, all participants were detained in the Marion County juvenile detention center. This short-term facility, serves as the only juvenile detention center for Marion County, houses adolescents who have been arrested for an offense or an arrest warrant, as well as adolescents serving a sentence imposed by the juvenile court (Hoskins, 2008). Prior to 2006, the Marion County juvenile detention center detained a maximum of 144 adolescents at a time, but currently detains approximately 112 adolescents at a time (Hoskins, 2008).

2.6 Data Analysis

Following data linking and coding, basic descriptive statistics (e.g., mean, range, standard deviation) and frequency distributions were run for all variables to check for data entry errors, coding errors, non-normal distributions, outliers, and missing values. To address data entry errors, the original datasets provided by Regenstrief Institute, Inc. were reviewed to determine the source of the errors and whether errors could be fixed. If errors were present in the original datasets, I coordinated with Regenstrief data managers to address errors that were able to be fixed. For example, the dates for detention entry and/or release for some individuals were incorrect (e.g., -1999 rather than 1999), but easy to fix. When possible, coding errors were corrected prior to conducting main analyses. Variables exhibiting non-normal distributions (e.g., skewness $\geq$3 and kurtosis $\geq$5) were log-transformed. These log-transformed variables were used for all parametric statistical

tests (e.g., ANOVAs, *t*-tests) that require variables to have normal distributions. The original variables, with the exclusion of outliers (e.g. ≥3 standard deviations from the mean), were used for non-parametric statistical tests (e.g., logistic regression, chi-square tests) that do not require variables to have normal distributions. (Allison, 2013).

Descriptive statistics (e.g., means, standard deviations, medians, ranges, minimum values, maximum values, distributions, outliers) were conducted to examine basic sample demographics, including the distribution and prevalence of gender, race/ethnicity, and age during first detention. Interactions between these demographic variables were performed to determine the prevalence of White males, White females, Black males, Black females, Other Minority males, and Other Minority females within each age cohort. Once calculated, the number of Other Minority DAs in the sample (n = 630, 6.5%) was disproportionately smaller than Black DAs (n = 5667, 58.6%) and White DAs (n = 3367, 34.8%), so these adolescents were dropped from analyses focused on direct comparisons by race, but included in all other analyses. These DAs were excluded, rather than collapsed into one minority group with Black DAs, because prior research (Lopez-Williams et al, 2006; Lyons et al., 2003; Rawal et al., 2004) has shown significant differences in key outcomes for Black DAs versus non-Black minority DAs. Finally, adolescents with missing values were eliminated from analyses on a case-by-case basis, using pairwise deletion.

Basic descriptive statistics were also run to find the means, standard deviations, medians, ranges, minimum values, maximum values, and outliers for continuous criminal history variables, such as age at first contact with juvenile justice system, number of arrests prior to detention, number of charges, length of detention stay (in days), number of prison stays, and RAI scores. Frequency counts were conducted to determine the prevalence of categorical criminal history variables, including number of youth with felony charges, drug-related charges, violent offenses, multiple detention stays, as well as rated as low-risk, medium-risk, and high-risk offenders.

With respect to mental health and substance-related variables, the means, standard deviations, and ranges of the seven MAYSI-2 subscale scores were calculated, as well as the prevalence of DAs who scored in caution and/or warning ranges for each subscale.

Based on these results, the mean (and range) of elevated subscales in the caution and/or warning ranges and the prevalence of DAs who screened positive on the MAYSI-2 were determined. In addition, prevalence rates were calculated for the number of DAs with mental disorders, substance-related disorders, comorbidity, diagnoses prior to detention, diagnoses after release from detention, and meeting criteria for different types of disorders (e.g., anxiety disorders, alcohol-related disorders, conduct-related disorders). Analyses were also conducted to calculate the mean number of different disorders, as well as mean days to obtain diagnosis in relation to first detention stay.

2.6.1 Data Analysis for Aim 1

Focused statistical analyses were performed to answer the research questions associated with the four study aims. To address research question one of Aim 1 (i.e., conduct a cross-sectional exploration of post-detention treatment utilization), frequency tables displaying the number and percentage of DAs utilizing services were generated to determine prevalence rates for the following types of treatment: any treatment, mental health treatment, substance-related treatment, and either/both treatment, as well as the following treatment settings: outpatient treatment and non-outpatient treatment. For each treatment type and treatment setting, analyses were re-run to determine prevalence rates for pre-detention treatment utilization, as well as treatment utilization at 2-years, 18-months, 1-year, 6-months, and 1-month follow-up from release from detention.

It should be noted that the total sample size decreased as length of post-detention follow-up increased, due to attrition. Specifically, an increasing number of participants had to be dropped from data analysis due to attrition-related issues including lack of complete follow-up data, death during the follow-up period, and/or incarceration for ≥50% of the follow-up time period. Adolescents incarcerated for long-term stays were eliminated from time-restricted analyses (e.g., within one year post-detention, two years post-detention) because treatment utilization data while incarcerated in prison were missing, so including these adolescents would have created skewed results that underestimated treatment prevalence rates. Although these incarcerated youth were excluded from time-restricted analyses, they were included in overall analyses for total

study time frame (i.e., survival analyses). Further, due to attrition and disparate follow-up periods across participants that ranged from 1 year to 14 years post-detention, analyses for Study Aims 1, 2, and 3 were restricted to the two-year period following release from first detention stay; thus, all participants had the same time frame to receive services.

Consistent with data analyses already described, analyses for question two of Aim 1 entailed descriptive statistics to determine the quantity (i.e., mean, standard deviation, and ranges) of unique treatment services used by DAs, as well as mean time (in days) between services, number of services per month, and length of stay (in days) for inpatient treatment. For research questions 3-4 of Study Aim 1, frequency tables were generated to determine prevalence rates for types of services users (e.g., just mental health, two treatment types), setting for service user (e.g., outpatient, inpatient), intensity of service users (e.g., low users, moderate users, extreme users), outpatient treatment dropouts, and gaps between outpatient treatment services. When applicable, analyses were re-run to examine the prevalence and quantity of treatment services for each of the three treatment types and two treatment settings.

2.6.2 Data Analysis for Aim 2

To answer the research questions associated with Aim 2 (e.g., examine group differences in post-detention treatment utilization), a series of statistical tests were conducted to identify significant differences in treatment services across groups of DAs. The following groups served as the independent variables: gender (male vs. female), race (White DAs vs. Black DAs), age cohorts (younger age, mid-age, and older age), MAYSI-2 (did not take the MAYSI-2, positive screen, non-positive screen), disorder type (mental disorder, substance-related disorder, comorbid), pre-detention treatment (yes/no), violent offender (yes/no), recidivist (yes/no), and re-detained/incarceration after first detention (yes/no). The following outcomes calculated in Aim 1 served as the dependent outcome variables for Aim 2: 1) prevalence of treatment utilization, 2) total number of services, 3) number of outpatient sessions per month, 4) time between treatment services, 5) length of stay (in days) for inpatient treatment services, 6) type of service user, 7) intensity of treatment services, 8) treatment dropouts, and 9) gaps between outpatient sessions.

Analyses focused on one independent variables and one dependent variable at a time. Statistical tests were selected to appropriately match the type of independent and dependent variables. For independent variables consisting of only two categorical groups (e.g., gender [male/female], violent offender [yes/no]), independent *t*-tests were used to test for differences between groups when dependent variables were continuous (e.g., number, frequency of session); Mann-Whitney *U*-tests were used when dependent variables were ordinal (e.g., intensity of service user) and 2x2 chi-square tests (χ^2) were used when dependent variables were categorical (e.g., treatment [yes/no], dropout [yes/no]). For independent variables consisting of three groups (e.g., age [younger, mid-age, and older], disorder type [mental health, substance-related, and comorbid], one-way analysis of variance (ANOVAs) tests were used to test for differences between groups when dependent variables were continuous, Kruskal-Wallis ANOVA tests were used when dependent variables were ordinal, and 3x2 chi-square tests were used when dependent variables were categorical. If the overall ANOVA or Kruskal-Wallis ANOVA produced a significant finding ($p \leq .01$), a series paired *t*-tests were run to identify which of the three groups significantly differed from each other. Similarly, when 3x2 chi-square tests were significant, subsequent 2x2 chi-square tests were conducted to identify group differences. To control for alpha inflation and reduce the likelihood of Type 1 errors (Altman, 2000), significance levels for all statistical tests for Aim 1 and 2 were set at $p \leq .01$.

2.6.3 Data Analysis for Aim 3

Hierarchical logistic regression was used to answer the research questions posed in Aim 3 (e.g., identify predictors of post-detention service utilization). Prior to running any regression analyses, bivariate correlations between predictor variables and collinearity statistics for all predictor variables were examined to check for multicollinearity. Strong correlations ($r \geq 0.75$), large inverse inflation factors ($\geq$5.0, $p \leq .10$), and/or small tolerance estimates ($\leq$.20) associated with a predictor were considered indicators of multicollinearity (O'Brien, 2007). Predictors showing evidence

of multicollinearity were excluded from analyses. Outlier and missing values were also removed using pairwise deletion and not included in the regression analyses.

Altogether, a series of six separate hierarchical logistic regression models were run, with one outcome per model. The models focused on predicting one of the following outcomes within two years of release from detention: 1) any treatment utilization (yes/no), 2) any mental health treatment utilization (yes/no), 3) any substance-related treatment utilization (yes/no), 4) any either/both treatment utilization (yes/no), 5) any outpatient treatment utilization (yes/no), and 6) any non-outpatient treatment utilization (yes/no). Based upon prior research that has used logistic regression analyses to predict treatment utilization (Johnson et al., 2004; Lopez-Williams et al., 2006; Teplin et al., 2005), predictor variables were entered via three stages. Predictors for stage one included the following demographic variables: male gender (yes/no), Black race (yes/no), and age upon detention entry. Predictors for stage two entailed the following criminal history variables: number of arrests prior to detention, number of charges at detention entry, charge severity (1 to 5), violent offender (yes/no), and length of first detention stay. Predictors for the third stage included the following mental health variables: conduct-related disorder (yes/no), non-conduct mental disorder (yes/no), substance-related disorder (yes/no), total number of disorders, pre-detention outpatient treatment (yes/no), and pre-detention non-outpatient session (yes/no).

It should be noted that recidivism (yes/no) and re-incarceration (yes/no) were initially intended to be included as predictors in stage two, but were eliminated from analysis due to uncertainty about timing in relationship to treatment utilization. As predictors of treatment utilization, these events needed to occur before service use. However, due to the nature of the data, the dates for recidivism events were not known; rather, the time frame (e.g., three months, six months) in which the recidivist event occurred was known. Based on rough estimates, only a small percentage (16.2%) of recidivism events occurred prior to post-detention treatment utilization, so recidivism was unable to serve as a predictor variable. Similarly, the majority of re-detentions or re-incarcerations (66.1%) occurred after treatment utilization, making this variable inappropriate to serve as predictor variable for post-detention treatment utilization.

Scores from the Risk Assessment Inventory (RAI) and Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2) were also intended to be included as predictors of treatment utilization. However, only adolescents detained after 2005 completed these measures. To examine the potential importance of RAI scores and a positive screen (yes/no) on the MAYSI-2, additional logistic regression analyses were performed comparing results for adolescents in cohort one (i.e., detained prior to the implementation of these measures) versus cohort two (i.e., detained post-implementation of these measures). For analyses of cohort one, the six separate hierarchical logistic regression models were re-run using the same predictors outlined above. For cohort two, the six models were re-run with RAI scores included as a predictor in stage two predictor and positive screen on the MAYSI-2 (yes/no) as a predictor in stage three.

After entering the predictors into the regression models, the following model summary statistics were examined to compare the goodness of fit for each stage of the analyses: -2 Log Likelihood, Nagelkerke R^2, chi-square test, and classification percentage. With regards to interpreting these model summary statistics, the value of the -2 Log Likelihood is not informative on its own, but can be used to compare model stages, with smaller numbers indicating a better fitting model (Allison, 2013). The Nagelkerke R^2 is a pseudo-R^2 value, meaning it cannot be interpreted as R^2 values are in linear regression analyses (i.e., the percent of variance in the dependent variable explained by the predictors) (Allison, 2013). Instead, this statistic reflects the percent of improvement compared to a null model with no predictors (i.e., model predicts the mean of the dependent variable based on no information or predictors) (Menard, 2000). Since there are no clear standards for what constitutes a strong Nagelkerke R^2 value, these R^2 values are interpreted by comparing values across different stages; larger R^2 statistics indicate better fitting models (UCLA: Institute for Digital Research and Education). The chi-square test examines the probability of obtaining results if there is no effect of the predictor variables on the dependent variable. Significant findings therefore indicate that the model is significantly different than the hypothesized null model, and that the independent variables are significant in predicting the dependent variable (UCLA: Institute for Digital Research and Education). Finally, the classification percentage refers

to the overall percentage of cases correctly predicted by the regression model using the specified predictors, with higher percentages indicating a more accurate predictive model (UCLA: Institute for Digital Research and Education). In addition to model summaries, log-odds estimates, adjusted odds ratios, 95% confidence intervals for the odds ratios, and significance values for all independent predictors at stage three were calculated to identify the predictors that significantly ($p \leq .05$) impacted the likelihood of treatment utilization.

2.6.4 Data Analysis for Aim 4

Survival analyses were used to answer the research questions associated with Aim 4 (e.g., examine longitudinal patterns of post-detention treatment service utilization). First, two separate Kaplan-Meier survival analyses were run to examine the following outcomes: 1) connection to care, or time to first post-detention treatment utilization and 2) retention in outpatient services, or time to termination from outpatient treatment services. For the first outcome, the origin of time was defined as the date of release from first detention stay and the endpoint was defined as date of first treatment service (or end of study time frame). Since the origin of time differed across DAs, follow-up times ranged from 0 years (i.e. released in 2011 at the end of data collection) to 14 years (i.e. released from detention in 1998 at the beginning of data collection). The metric of time was continuous, measured in days since release from detention. Participants who did not utilize treatment were deemed non-users and treated as censored cases (Cloyes, Wong, Latimer, Abarca, 2010; Corning & Malofeeva, 2004). For the second survival analysis, the origin of time was defined as the date of first outpatient treatment session and the endpoint was the date of final outpatient session. The metric of time for these analyses was also continuous, measured in days since participation in first outpatient session. Again, participants who did not utilize outpatient treatment were treated as non-users and censored cases (Corning & Malofeeva, 2004).

Descriptive statistics for the survival analysis models were generated and examined via life tables, which show the event histories of participants from the beginning to the end of data collection (Bewick, Cheek, & Ball, 2004). Given the

extended length of follow-up (i.e., 14 years), time for the life tables were divided into 6-month time intervals. For each time interval, the following statistics were generated: number of treatment users during time interval, censored cases (i.e., non-users), risk set (i.e., number of adolescents eligible to experience the outcome), probability of outcome (i.e., treatment utilization, treatment termination), and hazard rate (Bewick et al., 2004; Corning & Malofeeva, 2004).

To address question two of Aim 4, analyses were re-run to examine group differences. Specifically, Kaplan-Meier survival analyses were conducted to determine whether the two main outcomes significantly differed ($p < .01$) for the following independent variables: male gender (yes/no), Black race (yes/no), age cohorts (younger age [≤13 years], mid-age [14-15 years], and older age [≥16 years]), MAYSI-2 (did not take the MAYSI-2, positive screen, non-positive screen), disorder type (mental disorder, substance-related disorder, comorbid), violent offender (yes/no), repeat offender (yes/no), repeat detention/incarceration (yes/no), pre-detention treatment (yes/no), treatment type (mental health, substance-related either/both), and setting (outpatient, non-outpatient). The median time to event (i.e., treatment utilization, dropout) for each group was calculated (Willie, 2012).

Survival curves for each group were directly compared using several chi-square tests, including the Log Rank, Breslow/Wilcoxon, and Tarone-Ware (Bewick et al., 2004; Bouliotis & Billingham, 2011). The Log Rank chi-square represents the most common and frequently used test for identifying differences in survival analysis outcomes (Willie, 2012), with significant results indicating that survival curves differ significantly across groups in the long-term. This test can be limited in examining survival curves that intersect over time, which typically yield non-significant results, even though curves may be significantly different at other follow-up time points (Bouliotis & Billingham, 2011). Thus, alternative chi-square tests include weighted log-rank tests, such as the Breslow/Wilcoxon test and Tarone-Ware test. The Breslow/Wilcoxon test is more sensitive to differences in early follow-up periods, with significant results indicating survival curves differ significantly across groups in the short-term (Willie, 2012). The Tarone-Ware chi-square test considers the overall survival curve and has been shown to

be superior to the Log Rank test because it can better compare variables with more than two levels (Willie, 2012). Significant results for the Tarone-Ware tests indicate that survival curves differ significantly across groups in the middle portion of the follow-up time, with the magnitude of results typically falling in between the results for the Log Rank test and Breslow/Wilcoxon test. In addition to examining the chi-square tests, the survival curves for different groups for each independent variable were generated and displayed via graphs to visually examine longitudinal patterns of treatment utilization.

To identify significant predictors of treatment utilization over time, Cox proportional hazards regression models with time-dependent variables were conducted. Cox proportional hazards regression analyses can be interpreted like other regression analyses, in that multiple variables can be entered into the model in stages to determine whether they significantly impact the risk of an outcome (Bewick et al., 2004). Similar to the logistic regression analyses, the following variables were entered via three separate stages: male gender (yes/no), Black race (yes/no), age, number of pre-detention arrests, number of charges upon detention entry, charge severity (1 to 5), length of detention stay, violent offender (yes/no), conduct-related disorder (yes/no), non-conduct mental disorder (yes/no), substance-related disorder (yes/no), pre-detention outpatient treatment (yes/no), and pre-detention non-outpatient treatment (yes/no). In addition, being re-detained/incarcerated (yes/no) was included as a criminal history variable in stage two. Since this event occurred after release from detention and possibly after treatment utilization, the variable was not included as a predictor in the logistic regression analyses. However, Cox proportional hazards regression models are able to control for timing effects by treating such variables as time-dependent, in which the value of the variable is expected to change (i.e., from no [0] to yes [1]) within the same time frame as the occurrence of the outcome (Corning & Malofeeva, 2004). The model handles time-dependent variables by excluding participants via pairwise deletion who experience the independent variable *after* the dependent variable (i.e., re-detained after treatment utilization), while still retaining participants for the other components of the Cox regression analyses pertaining to the other independent variables (i.e., hazard ratios for independent variables like age, race, charge severity) (Corning & Malofeeva, 2004).

Similar to logistic regression analyses, additional analyses were conducted to examine differences between DAs within cohort one versus cohort two. Analyses for cohort one included the same predictors; analyses for cohort two included the addition of RAI scores in stage two and MAYSI-2 positive screen (yes/no) in stage three. Several goodness-of-fit statistics were examined to determine model fit, including -2 Log Likelihood and chi-square tests (Corning & Malofeeva, 2004). Finally, the hazard ratios, standard errors, and significant values for each predictor variable were calculated to identify significant variables ($p \leq .05$) associated main outcomes. Hazard ratios are interpreted like odds ratio, with the exception that hazard ratios indicate the *risk* of an outcome *at any time* during the 14-year follow-up period for one group compared to another group, whereas odds ratios indicate the *likelihood* of an outcome *by the endpoint* of a follow-up period (Bewick et al., 2004). Hazard ratios are considered to remain constant over time (Corning & Malofeeva, 2004), so that the risk of an outcome like dropping out of treatment is the same within two years of detention release as it is within ten years of detention release. All data analyses were conducted using the software program SPSS0-Version 22.0 and all study procedures were approved by the institutional review board at Indiana University-Purdue University Indianapolis.

2.7 Statistical Power Analysis

The overall sample for the study included 9,664 adolescents, with approximately 8915 adolescents included in time-restricted analyses for treatment services within two years of detention release. The primary statistical tests conducted for this this study included *t*-tests, chi-square tests, ANOVAs, Pearson's correlations, logistic regression analyses, and Cox regression analyses. According to G*power statistical power analysis software (Erdfelder, Faul, & Buchner, 1996), with a stringent alpha level of $p < .01$ and a power level of ≥.95, the sample must contain a minimum of 5956 adolescents to have enough statistical power to detect small significant effects (≥.10) using *t*-tests, at least 2268 adolescents to detect small effects using chi-square tests, at least 2070 adolescents to detect small significant effects using ANOVAs between 3 groups, at least 595 adolescents to detent small significant effects using correlations, and at least 10861

adolescents to detect small effects for logistic regression analyses. Smaller samples are required to detect significant medium (≥.30) or large (≥.50) effects using the various statistical tests (G*power). Given the sample includes more than 9,000 youth, the study contained enough statistical power to find significant results for small, medium, and/or large effects, with the exception of being underpowered to detect small effects via regression analyses.

CHAPTER 3. RESULTS

3.1 Sample Demographics

Please see tables and figures referenced within this section for full results. The sample of participants who met full inclusion criteria included 9,664 detained adolescents (DAs) with Medicaid coverage. A total of 6062 (62.7%) were male, 3367 (34.8%) were White, 5667 (58.6%) were Black, and 630 (6.5%) were Other Minority races/ethnicities (e.g., non-White Hispanic, American Indian/Alaskan, Asian/Pacific Islander). When considering gender and race/ethnicity together, DAs included 2010 White males (32.2% of males; 59.7% of White youth; 20.8% of sample), 3631 Black males (59.7% of males; 63.9% of Black youth; 37.5% of sample), 199 Other Minority males (7.1% of males; 68.4% of Other youth; 2.1% of sample), as well as 1357 White females (37.7% of females; 40.3% of White youth; 14.0% of sample), 2046 Black females (56.8% of females; 36.1% of Black youth; 21.2% of sample), and 321 Other Minority females (5.5% of females; 31.6% of Other; 4.5% of sample).

Results revealed significant effects for race x gender (Table 3.1), with a positive correlation between male gender and minority race ($r = .04$, $p < .001$) (Table 3.2). While the overall sample included 62.7% males and 37.4% females, analyses found higher percentages than expected for White females (40.3%) than White males (59.7%), and higher percentages for Black males (63.9%) than Black females (36.1%; $\chi^2 = 15.86$, $p < .001$) and higher percentages for Other Minority males (68.4%) than Other females (31.6%; $\chi^2 = 20.30$, $p < .001$). As noted in the methods section, Other Minority DAs ($n = 630$, 6.5%) in the sample were dropped from subsequent analyses focused on race/ethnicity, but included in all other analyses. Upon excluding Other Minority DAs, the resulting sample for analyses examining racial differences included 9034 adolescents (62.3% male; 62.7% White, 37.3% Black).

DAs were approximately 14.70 years (*SD* = 1.64, range = 11-18) upon entry into their first detention stay. Females (*M* = 14.83, *SD* = 1.45) were significantly older than males (*M* = 14.62, *SD* = 1.68) upon detention entry ($t(1) = 38.51$, $p < .001$); white DAs (*M* = 14.80, *SD* = 1.64) were significantly older than Black DAs (*M* = 14.64, *SD* = 1.65; $t(1) = 18.29$, $p < .001$). When divided into age cohorts, the sample consisted of 2406 (24.9%) younger DAs aged 11-13 years, 3925 (40.6%) mid-age DAs aged 14-15 years, and 3334 (34.5%) older DAs aged 16-18 years (Table 3.1). Chi-square tests (χ^2) revealed significant effects for Gender x Age, with higher percentages of males (26.8%) than females (21.7%) in the younger age cohort compared to lower percentages of males (59.8%) than females (65.8%) in the mid-age cohort ($\chi^2 = 22.02$, $p < .001$), and lower percentages of males (33.2%) than females (36.7%) in the older age cohort ($\chi^2 = 4.74$, $p < .001$). Analyses also revealed significant effects for Race x Age; there were significant differences in the proportion of White DAs (51.5%) versus Black DAs (55.0%) in the young cohort compared to the proportion of White DAs (48.5%) versus Black DAs (45.0%) in the mid-age cohort ($\chi^2 = 7.80$, $p = .005$) and compared to White DAs (61.6%) versus Black DAs (56.3%) in the old age cohort. Results were not significantly different for the proportion of males versus females ($\chi^2 = 1.42$, $p = .231$) or the proportion of Black DAs versus White DAs ($\chi^2 = .167$, $p = .171$) in the mid-age cohort compared to the older age cohort.

3.2 Criminal History Outcomes

Altogether, 9304 DAs (96.3%) had contact with the juvenile justice system prior to first detention. For these DAs, time between first contact and first detention averaged 304.72 days (*SD* = 491.59, *Mdn* = 68.0, range = 0-840.15). The average age of first contact with the juvenile justice system was 14.10 years (*SD* = 1.82, range = 6.0-18.0) and the average number of contacts prior to first detention was 3.22 (*SD* = 2.77, range = 0.0-44.0). As shown in the correlation matrix of Table 3.2, demographic factors were significantly related to numerous criminal history variables. Significant correlations were found between male gender and age of first contact ($r = -.90$, $p < .001$) and number of pre-detention arrests ($r = .16$, $p < .001$), between Black race and age of first contact (*r*

= .07, $p < .001$) and number of arrests ($r = -.10$, $p < .001$), and between age at detention entry and number of prior arrests ($r = .10$, $p < .001$). Males ($M = 13.98$, $SD = 1.88$) were significantly younger than females ($M = 14.33$, $SD = 1.66$) at first contact ($t(1) = 38.51$, $p < .001$) and had significantly more contacts with the juvenile justice system ($M = 3.57$, $SD = 2.95$, range = 0.0-44.0) than females ($M = 2.65$, $SD = 2.30$, range = 0.0-22.0) ($t(1) = 257.72$, $p < .001$). Similarly, Black DAs ($M = 14.00$, $SD = 1.83$) were significantly younger than White DAs ($M = 14.00$, $SD = 1.79$) at first contact ($t(1) = 39.30$, $p < .001$) and had significantly more prior arrests ($M = 3.41$, $SD = 2.84$, range = 0.0-44.0) than White DAs ($M = 2.87$, $SD = 2.56$, range = 0.0-28.0; $t(1) = 84.32$, $p < .001$).

Participants were first detained within the Marion County juvenile detention center between the years of 1998 and 2011, for an average of 9.72 days ($SD = 15.45$, range = 0.0-180.0) in detention. As shown in Table 3.3, detention rates declined over time, with a notable drop in the number of youth placed in detention after 2006. Specifically, approximately 6815 (70.5%) adolescents were detained within the 8-year time frame of 1998 to 2005 (i.e., cohort one), whereas only 2849 (29.5%) adolescents were detained within the 6-year time frame of 2006 to 2011 (i.e., cohort two). Although the number of detained youth declined over time, the average length of stay increased over time ($r = .06$, $p < .001$), with the largest mean length of stay occurring between 2008 and 2009 ($M = 12.63$, $SD = 18.29$, range = 0.0-141.0). The majority of DAs were arrested and referred to the Marion County juvenile detention center by the Indianapolis Police Department ($n = 3711$, 38.40%), the Marion County Sheriff ($n = 2308$, 23.9%), the Indianapolis Metropolitan Police Department (i.e., consolidation of Indianapolis Police Department and Marion County Sheriff Department in 2007; $n = 1082$, 11.2%), or Police Departments of Indianapolis suburbs (e.g., Carmel, Lawrence; $n = 1130$, 11.3%). The remaining youth ($n = 1170$, 12.1%) were referred to detention via school districts, domestic referrals, or unknown agencies.

As documented in participants' juvenile justice records, DAs averaged 1.21 charges ($SD = 1.22$, range = 1.0-104.0) upon detention entry. Table 3.4 displays the types of criminal charges associated with detention, reasons for detention stays, and subsequent placements upon release from detention. The most common types of charges

included conduct-related charges (n = 4445, 46.0%), property-related charges (n = 2567, 26.6%), and drug/alcohol-related charges (n = 439, 4.5%). With regards to the most severe charge (1 to 5), there were 2095 (21.7%) DAs with ratings of 5 for violent felonies, 1114 (11.5%) DAs with ratings of 4 for non-violent felonies, 1450 (15.0%) DAs with ratings of 3 for violent misdemeanors, 4175 (43.2%) DAs with ratings of 2 for non-violent misdemeanors, and 511 (5.3%) DAs with ratings of 1 for status offenses or probation violations. In addition, 319 (3.3%) DAs were not rated, due to unknown charges. Altogether, 3542 (36.7%) DAs were charged with a violent crime (e.g., Assault, Rape, Robbery with Deadly Weapon) and therefore classified as violent offenders.

As displayed in Table 2, number of charges was not significantly correlated with any demographic variables, but higher charge severity was significantly correlated with male gender (r = .13, p < .001) and younger age at detention entry (r = -.03, p = .002). Although effect sizes tended to be small, being a violent offender was significantly related to male gender (r = .04, p < .001), Black race (r = -.03, p < .001), younger age of first contact with the juvenile justice system (r = -.07, p < .001) and younger age at detention entry (r = .15, p < .001). Most DAs were placed in detention due to being outright arrested t (n = 4953, 51.3%) or awaiting action for pending or past charges (n = 3314, 34.3%). Upon release, most DAs were placed on home detention (n = 4687, 48.5%) or released into the care of parents/guardians (n = 2542, 26.3%).

The RAI was administered to DAs within cohort two (i.e., detained during 2006-2011) to determine risk of recidivism. Of the 2849 adolescents in cohort two, 2568 (90.1%) DAs obtained a mean RAI score of 11.69 (SD = 3.89, range = 0.0-24.0). Males (M = 12.24, SD = 3.72, range = 0.0-24.0) obtained significantly higher risk scores than females (M = 448, SD = 4.06, range = 0.0-22.0; t(1) = 128.45, p < .001), and Black DAs (M = 12.24 SD = 2.39, range = 0.0-24.0) obtained significantly higher risk scores than White DAs (M = 10.87, SD = 4.31, range = 0.0-22.0; t(1) = 58.48, p < .001). In addition, older DAs (M = 11.27, SD = 3.98, range = 0.0-22.0) obtained significantly lower risk scores than mid-age DAs (M = 12.23, SD = 3.82, range = 0.0-24.0; t(1) = 23.21, p < .001), as well as younger DAs (12.21, SD = 3.66, range = 0.0-24.0; t(1) = 18.62, p < .001). With regards to level of risk for recidivism, RAI scores classified 201 (7.8%)

DAs as low-risk offenders, 1292 (50.3%) as medium-risk offenders, and 1075 (41.9%) as high-risk offenders. Table 3.5 lists the number of DAs within each of the three RAI risk levels according to gender, race, and age cohorts. In comparing across demographic groups, analyses showed significant differences in RAI risk levels for gender (U = 28842.0, $p < .001$), race (U = 45638.5, $p < .001$), younger DAs versus older DAs (U = 464593.0, $p < .001$), and mid-age DAs versus older DAs (U = 244020.5, $p = .004$).

Table 3.6 displays key findings for criminal activity following release from detention. A total of 6401 (66.2%) DAs experienced a recidivism event, meaning they were re-arrested at some point following detention. Prevalence rates for recidivism differed significantly across gender, race, and age; recidivism was significantly higher among males than females ($\chi^2 = 169.66$, $p < .001$), Black DAs than White DAs ($\chi^2 = 147.23$, $p < .001$), and younger DAs than mid-age DAs and older DAs ($\chi^2 = 895.94$, $p < .001$) (see Table 5). With regards to timing, 1953 (20.2%) were re-arrested with 3 months of detention release, 1016 (10.5%) were re-arrested within 4-6 months of detention release, 801 (8.3%) were re-arrested within 7-24 months of detention release, and 2631 (27.2%) were re-arrested more than two years after detention release. Similar to charges upon detention entry (Table 4), the most severe charges associated with recidivism at 6-month follow-up entailed conduct-related charges (n = 1024, 10.6%) and property-related charges (n = 747, 7.7%).

In addition to being re-arrested, a total of 5227 (54.1%) DAs had a second detention stay within approximately 259.63 days (SD = 326.44, range = 0.0-2431.0). As shown in Table 5, a significantly larger proportion of males versus females ($\chi^2 = 85.65$, $p < .001$), Black DAs versus White DAs ($\chi^2 = 44.57$, $p < .001$), and younger DAs and mid-age DAs than older DAs ($\chi^2 = 784.49$, $p < .001$) were re-detained. Most second detentions (n = 3,993; 90.0%) occurred within two years of first detention and lasted approximately 11.78 days (SD = 13.29, range = 0.0-180.0) days. Altogether, the sample experienced a mean of 2.16 (SD = 1.64, range = 1.0-12.0) detentions within two years and 2.65 (SD = 2.26, range = 0-17) detentions across the entire study time frame. When restricting analysis to only DAs with multiple detentions (≥2 detentions), the average number of detentions increased to 4.0 (SD = 2.20, range = 2.0-17.0).

A small number of DAs (*n* = 1538; 15.9%) were committed to the Department of Corrections (DOC) for long-term prison stays (Table 6). These DOC commitments occurred within approximately 620.06 days (*SD* = 447.44, range = 0.0-2305.0) of release from detention, with a mean length of stay of 359.47 days (*SD* = 280.91, range = 1.0-1709.0). Significant correlations were found between being incarcerated and being male (*r* = 0.03, *p* = .005) and younger at detention entry (*r* = -.19, p < .001) (Table 2). The proportion of DAs who were incarcerated was not significantly different for gender and race, but differed significantly for age (χ^2 = 324.56, *p* < .001). As displayed in Table 5, there were significantly more younger DAs who were placed in prison than middle age DAs (χ^2 = 80.34, *p* < .001), and more mid-age DAs who were placed in prison than older DAs (χ^2 = 37.72, *p* < .001). Out of the 1538 participants who were incarcerated, 1267 (82.4%) had one prison stay, 235 (15.3%) had two prison stays, and 36 (2.3%) had 3-4 prison stays. The mean number of commitments for these youth across the entire study time frame was 1.20 prison stays (*SD* = .46, range = 1.0-4.0).

3.3 Mental Health and Substance-Related Outcomes

Similar to the Risk Assessment Inventory, the Massachusetts Youth Screening Instrument, 2nd edition (MAYSI-2) was implemented within Marion County juvenile detention center in 2006. A total of 2575 out of 2849 (96.6%) DAs within cohort two completed the MAYSI-2 in approximately 5.38 minutes (*SD* = 6.35, range = 0.0-93.37). As shown in Table 3.7, the Angry-Irritable subscale had the highest mean score (*M* = 4.19 of 9.0, *SD* = 2.82, range = 0.0-9.0) and the Thought Disturbances subscale had the lowest mean score (*M* = 0.71 of 5.0, *SD* = 0.98, range = 0.0-5.0). A total of 2065 (80.2%) DAs scored in the Caution range and 867 (33.7%) DAs scored in the Warning range for at least one of the seven subscales. Being female (*r* = -.20, *p* < .001), White race (*r* = .12, *p* < .001), and younger age (*r* = .05, *p* = .014) was significantly associated with larger number of scales falling in the caution or warning range. Please see correlation matrix displayed in Table 3.8 for all associations between demographic variables and mental health variables. Approximately 1748 (67.9%) DAs screened positively on the MAYSI-2; there were significantly higher proportions of positive

screens among females than males (χ^2 = 145.90, p < .001), Black DAs than White DAs (χ^2 = 288.39, p < .001), and younger DAs than mid-age and older DAs (χ^2 = 35.59, p = .001) (Table 3.5).

Table 3.9 displays results for mental disorders and substance-related disorders among the total sample. Altogether, 7015 (72.6%) DAs met criteria for at least one disorder, including 2689 (74.7%) females, 4326 (71.4%) males, 2690 (79.9%) White DAs, 3847 (67.9%) Black DAs, 1867 (77.6%) young DAs, 2869 (73.1%) mid-age DAs, and 2279 (68.4%) old DAs (Table 3.5). For these DAs, 3571 (50.0% with disorders; 37.0% of sample) adolescents had only mental disorders, 622 (8.9% with disorders; 6.9% of sample) adolescents had only substance-related disorders, and 2782 (39.6% with disorders; 28.8% of sample) adolescents were comorbid for both types of disorders. For the 7015 youths diagnosed with a disorder, 2442 (34.81%) DAs obtained their first diagnosis (as listed on their medical records) approximately 930.55 days (*SD* = 798.90, range = 0.0-2901.0) prior to first detention stay. In contrast, 16 (0.2%) DAs obtained their first diagnosis during detention within approximately 22.31 days (*SD* = 25.18, range = 0.0-80.0) of detention entry and 4557 (65.0%) DAs obtained their first diagnosis within a mean of 1344.33 days (*SD* = 1178.21, range = 0.0-4978.0) following release from detention. For youth diagnosed post-detention, 1838 (40.3%) received a diagnosis within two years of release from detention.

Participants averaged 3.62 (*SD* = 4.79, range = 0.0-43.0) unique disorders; 1629 (23.2%) DAs had only one disorder, whereas 1440 (16.3%) DAs had at least eight unique disorders. Increased number of disorders was significantly related to female gender (r = -.09, p < .001), White race (r = .18, p < .001), and younger age at detention entry (r = .09, p < .001) (Table 3.8). In contrast, pre-detention diagnosis was significantly associated with male gender (r = .20, p < .001), Black race (r = -.05, p < .001) and older age at detention entry (r = .13, p < .001).

A total of 6353 (65.7%) DAs met criteria for at least one mental disorder (i.e., excluding substance-related disorders). With regards to timing of diagnosis, 2315 (36.4%) adolescents obtained a diagnosis approximately 969.16 days (*SD* = 800.36, range = 0.0-2901.0) prior to diagnosis, 16 (0.2%) youth obtained a diagnosis within 21.18

days (*SD* = 25.78, range = 0.0-80.9) after detention entry, and 4022 (57.3%) youth obtained a diagnosis within an average of 1365.96 days (*SD* = 1202.24, range = 0.0-4942.0) after release from detention. Less than half of the DAs (*n* = 1617, 41.7%) diagnosed post-detention obtained a diagnosis within two years of detention release. As shown in Table 9, participants averaged 2.90 (*SD* = 4.08, range = 0.0-35.0) distinct mental disorders, with 1634 (25.7%) DAs meeting criteria for one mental disorder, compared to 1673 (26.3%) meeting criteria for at least six mental disorders. Significant correlations were found for higher number of disorders among female DAs (*r* = -.09, *p* < .001), White DAs *(r* = .15, *p* < .001), and younger DAs (*r* = -.12, *p* < .001) (Table 3.8). The most common diagnoses included mood disorders (e.g., major depressive disorder, bipolar disorder; *n* = 3872, 60.9%), conduct-related disorders (e.g., conduct disorder, oppositional defiant disorder; *n* = 3373, *n* = 53.1%), and anxiety-related disorders (e.g., generalized anxiety disorder, obsessive-compulsive disorder; *n* = 2468, 38.8%).

A total of 3444 (35.6%) DAs met criteria for at least one substance-related disorder (Table 3.9). Common disorders included cannabis-related disorders (e.g., cannabis abuse disorder, cannabis dependence disorder; *n* = 2154, 22.3%), drug-related disorders (e.g., cocaine dependence disorder, opiate dependence disorder, *n* = 1564, 16.2%), and alcohol-related disorders (e.g., alcohol use disorder, *n* = 1177; 12.2%). Regarding timing of substance-related diagnosis, 490 (14.2%) DAs obtained a diagnosis approximately 317.26 days (*SD* = 331.18, range = 0.0-1824.0) prior to detention, 5 (0.01%) DAs were diagnosed during detention within 11.80 days (*SD* =10.18, range = 1.0-23.0) of detention entry, and 2949 (85.62%) DAs received a diagnosis an average of 1515.06 days (*SD* = 1255.69, range = 0.0-4978.0) following detention release. Across the sample, DAs averaged 3.62 (*SD* = 4.79, range = 0.0-43.0) unique substance-related disorders; 1848 (53.7%) DAs had only one disorder and 395 (11.5%) DAs had at least four unique disorders. Significant correlations emerged between higher number of substance-related disorders and female gender (*r* = -.05, *p* < .001), White race *(r* = .17, *p* < .001), and younger age (*r* = .03, *p* = .005) (Table 3.8).

3.4 Prevalence of Pre-Detention Treatment Utilization

Prevalence rates for treatment utilization prior to first detention stay are displayed in Table 3.10. Overall, 2438 (25.2%) DAs obtained treatment at some point prior to detention entry, including 2297 (23.8%) DAs who obtained mental health treatment services, 354 (3.7%) DAs who obtained substance-related treatment services, and 575 (5.9%) DAs who obtained either/both treatment services (i.e., unknown services pertaining to one of the disorder types or both disorder types). The most common type of treatment entailed mental health treatment utilization (n = 2297, 23.8%) and the most common setting for treatment entailed outpatient services (n = 2435, 25.2%). Less than 5% of the sample obtained substance-related services (n = 354, 3.7%), received inpatient treatment (n = 456, 4.7%), or visited the emergency department for psychiatric reasons (n = 285, 2.9%) before their first detention stay. As the time frame prior to detention entry narrowed, prevalence rates for treatment utilization subsequently decreased. Only 918 (9.5%) DAs obtained treatment services within the month prior to detention; again, the most common type of treatment involved mental health services (n = 797, 8.2%) and most common setting was outpatient treatment (n = 873, 9.0%).

As shown in Table 3.5, prevalence rates for pre-detention treatment utilization were significantly different for gender (χ^2 = 199.64, p < .001) and between the three age cohorts (χ^2 = 56.26, p < .001). However, race was not significant; the prevalence of pre-detention treatment among White DAs (n = 841, 25.0%) and Black DAs (n = 1396, 24.6%) was similar. With regards to treatment type, being male was significantly related to pre-detention mental health treatment utilization (r = .14, p < .001) and pre-detention substance-related treatment utilization (r = .06, p < .001) (Table 3.11). White race was significantly related to pre-detention substance-related treatment utilization (r = .07, p < .001) and pre-detention either/both treatment utilization (r = .09, p < .001). Older age was significantly related to pre-detention mental health treatment utilization (r = .05, p < .001), pre-detention substance-related treatment utilization (r = -.13, p < .001, and pre-detention either/both treatment utilization (r = .07, p < .001).

Once placed in detention, approximately 323 (3.3%) DAs utilized services, namely outpatient sessions (n = 315, 3.3%) obtained within the detention center (see

Table 3.10). A very small number of youth (n = 16, 0.2%) appear to have been temporarily released from detention to obtain non-outpatient services. As shown in the correlations matrix of Table 3.11, overall treatment utilization during detention was more common among males (r = .05, p < .001), although gender was non-significant for utilization of any specific treatment type. There was a significant relationship between Black race and use of both/either treatment utilization during detention (r = -.78, p = .003), as well as significant relationships between age and general treatment utilization during detention (r = -.03, p = .004) and mental health treatment utilization during detention (r = -.04, p < .001).

3.5 Aim 1. Prevalence of Post-Detention Treatment Utilization

Total sample. Following release from detention, a total of 6437 (66.6%) DAs in the sample utilized treatment at least once during the study time frame (Table 3.12). With regards to treatment type, overall prevalence rates (*pr*) were 56.9% (n = 5496) for mental health treatment utilization, 26.6% (n = 2573) for substance-related treatment utilization, and 17.1% (n = 1652) for either/both types of treatment utilization. It should be noted that either/both treatment refers to unknown treatment type pertaining to either and/or both disorder types. In addition, numerous DAs (n = 2440, 25.2%) obtained more than one type of treatment and were therefore included in more than one estimate of prevalence rates. Regarding treatment type, overall prevalence rates were 64.5% (n = 6234) for outpatient treatment utilization, 14.5% (n = 1398) for inpatient treatment utilization, and 19.6% (n =1891) for emergency department (ED) visits. Given the small number of inpatient and ED visit users, these two treatment settings were collapsed into one estimate, resulting in an overall prevalence rate of 26.0% (n = 2515) for non-outpatient treatment utilization. The remaining results pertaining to non-outpatient services include both inpatient treatment and ED visits combined, unless otherwise specified.

Over time, as follow-up time periods decreased in length, the prevalence rates for treatment utilization also decreased (Table 3.12). Prevalence rates for treatment service utilization among DAs were 36.7% (n = 3269; 36.0% for outpatient; 8.0% for non-

outpatient) at 2-year follow-up, 33.3% (*n* = 3002; 32.6% for outpatient, 6.2% for non-outpatient) at 18-month follow-up, 29.0% (*n* = 2659; 28.8% for outpatient, 5.6% for non-outpatient) at 1-year follow-up, 22.1% (*n* = 2055; 21.7% for outpatient, 2.7% for non-outpatient) at 6-month follow-up, and 10.2% (*n* = 971, 9.6% for outpatient, 0.8% for non-outpatient) at 1-month follow-up. Regardless of follow-up time point, treatment utilization for mental health services was notably higher than substance-related services and either/both services for both outpatient and non-outpatient treatment services.

The number of DAs retained for follow-up analyses decreased over time, due to attrition. Specifically, a total of 749 (7.7%) participants were dropped from analyses focused on treatment utilization within two years of release from detention because 5 youths (0.03%; 5 males, 1 White DA, 4 Black DAs) died during the follow-up period, 251 youths (2.6%; 142 males, 92 White DAs, 150 Black DAs) were detained/incarcerated for ≥18 months during follow-up period, and 493 youths (5.1%; 400 males, 110 White DAs, 330 Black DAs) lacked adequate follow-up data. The remaining sample of 8915 DAs that served as the primary sample for time-restricted analyses of treatment utilization within two years of detention release consisted of 5515 (61.9%) males, 3400 (38.1%) females, 3164 (37.9%) White DAs, 5185 (62.1%) Black DAs, 2287 (25.7%) younger DAs, 3568 (40.0%) mid-age DAs, and 3060 (34.3%) older DAs.

3.5.1 Aim 2. Prevalence of Post-Detention Treatment Utilization by Groups

Demographic groups. To answer the research questions posed in Aim 2, post-detention service utilization was carefully examined across groups of DAs. Table 3.13 displays a correlation matrix of relationships between demographic variables and post-detention treatment variables and Table 3.14 displays the specific prevalence rates for post-detention treatment utilization within two years of release by demographic groups. As shown in the matrix, being male was positively associated with most post-detention treatment utilization outcomes. Specifically, male gender was significantly correlated with utilization of any treatment, all three treatment types (i.e., mental health, substance-related, and either/both), higher number of treatment services, and outpatient treatment. The prevalence (*pr*) of any treatment utilization within two years of detention release

among males (n = 2335, pr = 42.3%) was significantly higher than females (n = 944, pr = 27.6%; χ^2 = 200.22, p < .001). Results revealed significantly higher prevalence rates for treatment utilization among males compared to females for all three treatment types and outpatient treatment; however, findings were not significantly different for non-outpatient treatment utilization (χ^2 = 0.08, p = .782). Regarding race, being White was positively and significantly associated with utilization of treatment across all three treatment types and both treatment settings; however, correlations between race and number of services (regardless of type or setting) were not significant. As shown in Table 3.14, a higher prevalence of White DAs (n = 1221, pr = 38.6%) compared to Black DAs (n = 1791, pr = 34.5%) utilized treatment services. Prevalence rates were significantly higher among White DAs than Black DAs for the three treatment types and both treatment settings (see Table 3.14 for details).

Age was negatively related to post-detention treatment utilization, in that younger age was significantly associated with utilization and number of services for any treatment, mental health treatment, substance-related treatment, outpatient treatment, and non-outpatient treatment (Table 3.13). Age was not significantly correlated with both/either treatment services. Prevalence rates across the three cohorts for any treatment utilization were significant (χ^2 = 1054.42, p < .001); there were significantly less older DAs (n = 903, pr = 29.5%) who utilized treatment than mid-age DAs (n = 1419, pr = 39.8%) and younger DAs (n = 947, pr = 41.4%) (Table 3.14). Prevalence rates for any treatment utilization among younger DAs versus mid-age DAs failed to be significant (χ^2 = 5.94, p = .015). Additionally, findings indicated significant differences between age groups for mental health treatment utilization (χ^2 = 212.76, p < .001), either/both treatment utilization (χ^2 = 26.88, p < .001), and outpatient treatment (χ^2 = 114.52, p < .001), but non-significant differences for substance-related treatment utilization (χ^2 = 212.76, p = .147) and non-outpatient treatment utilization (χ^2 = 11.20 p = .014). Paired analyses revealed higher prevalence among mid-age DAs than younger DAs (χ^2 = 39.93, p < .001) and older DAs (χ^2 = 18.45, p < .001) for either/both treatment utilization, and lower prevalence among older DAs than younger DAs (χ^2 = 40.38, p < .001) and mid-age DAs (χ^2 = 20.74, p < .001) for outpatient treatment utilization.

Mental health groups. As shown in the correlation matrix of Table 3.15, most relationships between mental health variables and post-detention treatment variables were positive and significant. Specifically, positive screens on the MAYSI-2 and higher number of MAYSI-2 subscales in the caution range were significantly associated with treatment utilization and number of treatment services for all treatment types and settings, excluding use of substance-related services, number of substance-related services, and number of either/both treatment services. The prevalence rates for treatment utilization displayed in Table 3.16 indicate that screening positively on the MAYSI-2 was strongly related to post-detention treatment utilization. DAs with positive screens on the MAYSI-2 had significantly higher prevalence rates than DAs with non-positive screens for any treatment utilization (χ^2 =788.48, $p < .001$), treatment use for all three treatment types, and treatment use for both settings. It should be noted that a clear pattern emerged in the findings. Regardless of type or setting, DAs with positive screens had significantly higher prevalence estimates for treatment service use than DAs with non-positive screens, who in turn had significantly higher prevalence estimates than DAs who did not take the MAYSI-2 (i.e., detained prior to 2006).

All disorder groups were positively and significantly related to treatment utilization for the three treatment types, the two treatment settings, and number of treatment services (Table 3.15). It should be noted, however, that many significant correlations were in the negative direction for non-conduct mental disorders and substance-related disorders, in that DAs with diagnoses of mental disorders (other than conduct-related) or substance-related disorders were associated with the lack of post-detention treatment utilization and fewer number of treatment services. When comparing DAs by disorder type (Table 3.16), comorbid DAs had a significantly higher prevalence (n = 1427, pr = 55.6%) for any treatment utilization post-detention than DAs with mental disorders (n = 1614, pr = 49.5%; χ^2 = 40.27, $p < .001$), who in turn had a higher prevalence of treatment utilization than DAs with substance-related disorders (n = 228, pr = 37.0%; χ^2 = 235.58, $p < .001$). Results followed a similar pattern for outpatient treatment utilization (χ^2 = 2003.20, $p < .001$). When focused on treatment type, DAs with mental disorders did not utilize any substance-related treatment services and very

few (n = 5, pr = 0.2%) utilized either/both treatment services. Similarly, DAs with substance-related disorders did not utilize mental health treatment services or either/both services. Interestingly, DAs who were comorbid for both types of disorders had significantly higher prevalence of non-outpatient treatment utilization (n = 473, pr = 18.4%) than DAs with mental disorders (n = 212, pr = 6.5%; χ^2 = 10.32, p < .001) and substance-related disorders (n = 38, pr = 6.2%; χ^2 = 64.53, p < .001) (Table 3.16).

The correlation matrix for Table 3.17 shows the associations between pre-detention treatment services, during detention treatment services, and post-detention treatment services. As indicated by strong and positive associations, pre-detention treatment service utilization proved to be a significant factor in post-detention treatment utilization. Specifically, pre-detention treatment utilization, regardless of type, setting, or number, was significantly and positively related to post-detention treatment utilization, regardless of type, setting, or number. The only non-significant correlations entailed the association between pre-detention substance-related treatment utilization and number of post-detention mental health treatment services (r = .01, p = .180), and between number of pre-detention substance-related services and number of post-detention mental health treatment services (r = .02, p = .710). As shown in Table 3.16, prevalence rates for treatment utilization among DAs who had pre-detention services were significantly and substantially higher than DAs with no prior treatment (χ^2 = 1477.71, p < .001). Results were consistent across the three treatment types and both treatment settings.

Criminal history groups. Regarding the relationships between post-detention treatment utilization and criminal history variables, results were mixed. As shown via the correlation matrix of Table 3.18, correlations were all non-significant between treatment utilization and the following criminal history variables: number of criminal charges, charge severity, and total number of detentions (following first detention). Age at first contact with the juvenile justice system was negatively related to treatment utilization, in that younger age was significantly associated with utilization and number of post-detention treatment services, excluding either/both treatment services and non-outpatient treatment services. The number of referrals prior to first detention was significantly and positively related to post-detention treatment utilization and number of services for all

treatment types and treatment settings. Similarly, length of stay, being a violent offender, recidivism, re-detention, and incarceration were all positively associated with post-detention treatment utilization and number of treatment services.

Prevalence rates for treatment utilization across criminal history groups are shown in Table 3.19. Overall, DAs with more severe criminal history backgrounds tended to have higher rates of treatment utilization post-detention. Specifically, prevalence rates were significantly higher for violent offenders than non-violent offenders ($\chi^2 = 24.22$, $p < .001$), recidivists than non-recidivists ($\chi^2 = 383.37$, $p < .001$), and re-detained/incarcerated DAs than non-incarcerated DAs ($\chi^2 = 160.10$, $p < .001$). In general, DAs with more severe criminal history had higher treatment utilization rates for all treatment types and settings, with the exception of a significantly lower prevalence of substance-related treatment utilization among violent offenders than non-violent offenders ($\chi^2 = 25.71$, $p < .001$). With regards to timing of post-detention criminal activity and treatment utilization, 520 (16.2%) recidivists were re-arrested before they obtained treatment, compared to 2687 (82.8%) recidivists who obtained treatment before being re-arrested ($\chi^2 = 982.84$ $p < .001$). A total of 1088 (33.9%) DAs who were re-detained or incarcerated obtained treatment before their placement in detention or prison, compared to 2119 (66.1%) DAs who obtained treatment before being re-detained/incarcerated ($\chi^2 = 205.67$, $p < .001$).

Cohort groups. Results for post-detention treatment utilization showed marked divergence between DAs in cohort one (i.e., 1998-2005) versus DAs in cohort two (i.e., 2006-2011). As displayed in Table 3.20, prevalence rates were significantly higher for cohort two ($n = 1334$, 57.0%) compared to cohort one ($n = 1935$, $pr = 29.4\%$; $\chi^2 = 564.21$, $p < .001$) for any treatment utilization within two years post-detention. DAs in cohort two had higher prevalence rates than DAs in cohort one for all three treatment types and both treatment settings.

3.6 Aim 1. Quantity of Post-Detention Treatment Services

To address research question two within Aim 1, Table 3.21 displays the number of treatment services used by the total sample and demographic groups. Adolescents who

utilized treatment within two years post-detention (*n* = 3269*)* averaged a total of 19.70 (*SD* = 30.05, range = 1.0-369.0) unique treatment services. These DAs utilized a significantly higher number of mental health services than either/both services ($t(1) = 28.28$, $p < .001$) and substance-related services ($t(1) = 27.20$, $p < .001$). Not surprisingly, the mean number of outpatient sessions (*M* = 19.87, *SD* = 30.35, range = 1.0-369.0) was substantially larger than the mean number of non-outpatient services (*M* = 2.06, *SD* = 2.26, range = 1.0-20.0; $t(1) = 32.51$, $p < .001$). During the two years following detention release, participants obtained an average of 1.31 (*SD* = 1.81, range = 0.4-30.42) individual outpatient sessions per month. Comparisons across outpatient type indicate DAs utilized significantly more mental health outpatient sessions than substance-related services ($t(1) = 45.91$, $p < .001$); participants also utilized significantly more either/both sessions than substance-related services ($t(1) = 21.56$, $p < .001$). The difference in mean sessions between mental health and either/both outpatient services was not significant ($t(1) = 1.71$, $p = .192$).

3.6.1 Aim 2. Quantity of Post-Detention Treatment Services by Groups

Demographic groups. As shown in Table 3.21, male DAs utilized significantly more substance-related services ($t(1) = 8.06$, $p = .002$) and either/both services ($t(1) = 6.63$, $p = .01$) than female DAs; Black DAs utilized more substance-related services ($t(1) = 8.86$, $p = .003$) than White DAs. Comparisons between gender and racial groups for mean number of outpatient sessions per month were not significant. For age, results were significant for overall treatment services ($F(2, 8912) = 64.17$, $p < .001$), mental health treatment services ($F(2, 8912) = 46.25$, $p < .001$), and outpatient services ($F(2, 8912) = 62.33$, $p < .001$). Older DAs obtained significantly less treatment services than mid-age DAs ($t(1) = 39.29$, $p < .001$) and younger DAs ($t(1) = 17.38$, $p < .001$), less mental health treatment services than mid-age DAs ($t(1) = 102.23$, $p < .001$) and younger DAs ($t(1) = 100.49$ $p < .001$), and less outpatient services than mid-age DAs ($t(1) = 52.66$, $p < .001$) and younger DAs ($t(1) = 84.02$, $p < .001$). Younger DAs also utilized significantly more outpatient sessions per month than mid-age DAs ($t(1) = 22.55$, $p < .001$) and older DAs

($t(1) = 15.74$, $p < .001$), as well as more mental health sessions per month than mid-age DAs ($t(1) = 24.42$, $p < .001$) and older DAs ($t(1) = 13.65$, $p < .001$).

Mental health groups. ANOVA tests revealed significant differences in mean number of services across MAYSI-2 groups for overall treatment services ($F(2, 3266) = 12.55$, $p < .001$), mental health treatment services ($F(2, 3266) = 6.64$, p = .001), and outpatient services ($F(2, 3266) = 12.30$, $p < .001$) (Table 3.22). Results were also significant for all analyses pertaining to outpatient sessions per month, with the exception of non-significant findings for substance-related outpatient sessions ($F(2, 3266) = 3.22$, $p = .041$). When overall ANOVA findings were significant, a clear pattern emerged in which DAs with positive screens on the MAYSI-2 had the highest mean number of services, DAs with non-positive screens had the second highest mean, and DAs who did not complete the MAYSI-2 had the lowest mean number of services. Number of post-detention services differed significantly across the three disorder groups for any treatment utilization ($F(2, 3266) = 30.49$, p < .001), as well as all three treatment types and two treatment settings (see Table 3.22). DAs with substance-related disorders obtained significantly fewer outpatient sessions per month than DAs with mental disorders ($t(1) = 39.10$, $p < .001$) and DAs comorbid for both types of disorders ($t(1) = 13.85$, $p < .001$). Results were also significant for mental health outpatient sessions ($F(2, 2334 = 28.12$, $p < .001$) and either/both outpatient sessions per month ($F(2, 2334) = 125.44$, $p < .001$). DAs with a history of pre-detention treatment services averaged significantly higher number of services than DAs without pre-detention treatment for overall number of treatment services ($t(1) = 114.48$ $p < .001$), mental health treatment services ($t(1) = 69.91$, $p < .001$), both/either treatment services ($t(1) = 34.20$, $p < .001$), and outpatient services ($t(1) = 113.34$, $p < .001$). DAs with prior treatment also averaged higher outpatient sessions per month ($t(1) = 168.58$, $p < .001$) and substance-related sessions per month ($t(1) = 22.98$, $p < .001$) than DAs with no prior treatment.

Criminal history groups. The mean number of services used by violent versus non-violent offenders within two years post-detention failed to significantly differ for any treatment type or treatment setting (see Table 3.23). The only significant finding involved higher mental health outpatient sessions per month among non-violent offenders

than violent offenders ($t(1) = 8.52$, $p = .004$). In contrast, recidivists obtained significantly more treatment services than non-recidivists in terms of overall treatment services ($t(1) = 26.90$, $p < .001$), mental health treatment services ($t(1) = 70.00$, $p < .001$), and outpatient services ($t(1) = 26.36$, $p < .001$). However, the mean number of outpatient sessions per month did not differ significantly between these groups. Finally, DAs who were re-detained/incarcerated obtained significantly more overall treatment services ($t(1) = 17.79$, $p < .001$), mental health treatment services ($t(1) = 6.92$, $p < .001$), and outpatient services ($t(1) = 17.70$, $p < .001$) than DAs with no additional detentions or incarcerations. Similar to recidivism groups, the mean number of outpatient sessions per month failed to differ significantly between detention/incarceration groups.

Cohort groups. As shown in Table 3.24, DAs within cohort two obtained significantly more treatment services than DAs within cohort one. Specifically, cohort two DAs obtained higher number of substance-related treatment services ($t(1) = 13.99$, $p < .001$), either/both treatment services ($t(1) = 11.23$, $p < .001$), outpatient sessions per month ($t(1) = 12.85$, $p < .001$), mental health outpatient sessions per month ($t(1) = 24.85$, $p < .001$), and either/both outpatient sessions per month ($t(1) = 11.36$, $p = .001$) than cohort one DAs.

3.7 Aim 1. Frequency of Post-Detention Treatment Services

Table 3.25 displays results for research question two within Aim 1 concerning mean frequency (in days) between treatment services and mean length of stay for inpatient treatment services. On average, the 3207 DAs who utilized outpatient treatment within two years of detention release attended treatment every 33.92 days ($SD = 54.93$, range = 1.0-680.0). Mean days between different types of outpatient sessions were not significantly different ($F(2, 2786) = 0.50$, $p = .609$), with treatment users experiencing similar frequency between mental health treatment ($M = 33.56$, $SD = 53.37$, range = 1.0-680.0), substance-related treatment, ($M = 34.43$, $SD = 56.56$, range = 1.0-593.0), and either/both services ($M = 38.08$, $SD = 72.61$, range = 1.0-471.0). Mean time (in days) between non-outpatient services was much larger than outpatient services. DAs averaged utilization of non-outpatient treatment services every 117.69 days ($SD = 128.13$, range =

0.0-723.0). Time between non-outpatient substance-related services was significantly longer than time between mental health services ($t(1) = 10.29$, $p < .001$) and either/both services ($t(1) = 5.93$, $p < .001$). The average days between mental health services were also significantly longer than average days between either/both services ($t(1) = 8.83$, $p < .001$). Finally, average length of day (in days) for DAs ($n = 373$) who utilized inpatient treatment within two years of release from detention was 11.27 days ($SD = 23.36$, range = 1.0-496.0), with no significant differences in lengths of stay across the three treatment types ($F(2, 370) = 0.10$, $p = .908$).

3.7.1 Aim 2. Frequency of Post-Detention Treatment Services by Groups

Demographic groups. Paired *t*-tests revealed no significant differences in mean time between services or length of inpatient stay for gender and race (see Table 3.26). Results remained non-significant across all treatment types and treatment settings. Similarly, overall ANOVA tests indicated no significant differences between the three age cohorts regarding mean time between treatment sessions or average length of inpatient stay, although paired *t*-tests revealed some significant differences between specific age cohorts.

Mental health groups. As displayed in Table 3.27, mean days between outpatient sessions did not differ significantly across MAYSI-2 groups. Results showed non-significant differences between groups for time between treatment services and mean length of stay, although some MAYSI-2 groups were significantly different when directly compared using *t*-tests. Because certain disorder groups did not receive treatment (i.e., mean days between services = 0), overall ANOVA tests showed significant differences between disorder groups for average days between mental health outpatient sessions, substance-related outpatient sessions, and either/both outpatient sessions. However, paired *t*-tests between disorder groups that actually obtained services were not significant for mental health outpatient sessions ($t(1) = 0.07$, $p = .81$), substance-related outpatient sessions ($t(1) = 2.21$, $p = .138$), or either/both outpatient sessions ($t(1) = .03$, $p = .87$). Results were non-significant between disorder groups for overall length of stay ($F(2, 385) = .76$, $p = .471$), but significant for specific treatment types due to certain disorder

groups not obtaining any services (i.e., mean length of stay = 0 days). When restricting analyses to only disorder groups who utilized inpatient treatment, results were non-significant for lengths of stay for mental health inpatient treatment ($t(1) = .96$, $p = .328$) and substance-related inpatient treatment ($t(1) = 4.86$, $p = .037$). Finally, as displayed in Table 3.27, DAs who obtained treatment prior to detention did not significantly differ from DAs without prior treatment regarding average time between treatment services or average length of stay.

Criminal history groups. Overall, most findings for days between treatment services and lengths of stay were non-significant across criminal history groups (see Table 3.28). Violent offenders and non-violent offenders experienced similar time between outpatient treatment services and non-outpatient treatment services, as well as similar lengths of stay for inpatient treatment. Recidivist DAs and non-recidivist DAs also had similar days between treatment services and inpatient lengths of stay, with the exception of significantly less days between non-outpatient treatment services for recidivists versus non-recidivists ($t(1) = 13.43$, $p < .001$). Finally, compared to DAs with no additional detentions/incarcerations, DAs who were re-detained/incarcerated averaged similar time (in days) between outpatient sessions and lengths of stay for inpatient treatment. However, re-detained/incarcerated DAs experienced significantly more days than other DAs between non-outpatient services ($t(1) = 96.67$, $p = < .001$).

Cohort groups. As shown in Table 3.29, no significant differences emerged between cohort one and cohort two regarding mean time (in days) between treatment services and mean length of inpatient stay. Results were non-significant for all three treatment types and both treatment settings.

3.8 Aim 1. Intensity of Post-Detention Treatment Services

Results for research question three within Aim 1 are listed in Table 3.30. Altogether, 2084 (23.4%) DAs utilized only mental health treatment services, 370 (4.2%) utilized only substance related services, and 58 (0.7%) DAs utilized either/both treatment services within two years of reentry into the community. The remaining treatment users obtained a combination of two ($n = 575$, 6.5%) or three ($n = 200$, 2.2%) types of

treatment. With regards to treatment setting, the majority of treatment users (n = 2554, 28.6%) obtained only outpatient treatment, 70 (0.8%) DAs obtained only non-outpatient treatment, and the remaining treatment users (n = 653, 7.3%) obtained both outpatient and non-outpatient services. After coding for intensity of outpatient user, results classified 700 (7.9%) DAs as low users with 1-2 outpatient sessions, 771 (8.6%) DAs as low-to-moderate users with 3-7 sessions, 446 (5.1%) DAs as moderate users with 8-12 outpatient sessions, and the remaining 1352 DAs (15.2%) as high or extreme users with ≥ 13 outpatient sessions. Regarding intensity of non-outpatient treatment, 449 (5.1%) DAs were low users with one inpatient stay and/or ED visit, 121 (1.4%) DAs were low-to-moderate users with 2 stays/visits, 75 (0.9%) DAs were moderate users with 3-4 stays/visits, and the remaining 66 DAs (7.4%) were high or extreme users with ≥5 stays/visits.

3.8.1 Aim 2. Intensity of Post-Detention Treatment Services by Groups

Demographic groups. Intensity of treatment utilization differed significantly across gender, race, and age cohorts. As shown in Table 3.31, males were more intense treatment users than females; a significantly higher proportion of males obtained each individual treatment type, two or more types of treatment (e.g., mental health and substance related), and outpatient treatment. In addition, prevalence rates were significantly higher for males than females for all outpatient user intensity levels (e.g., 1-2 sessions, 3-7 sessions). Conversely, results were non-significant regarding proportion of non-outpatient users, users of two or three treatment settings (e.g., outpatient and ED visits), and non-outpatient user levels (e.g., 1 stay/visit, 2 stays/visits.). Regarding race, White DAs were more intense treatment users than Black DAs. The proportion of Black DAs were significantly smaller than the proportion of White DAs who utilized two treatment types (i.e., mental health and substance related treatment services; $\chi^2 = 11.15$, $p = .001$), only non-outpatient treatment services ($\chi^2 = 26.26$, $p < .001$), two treatment settings ($\chi^2 = 41.44$, $p = .001$), and three treatment settings ($\chi^2 = 27.41$, $p = .001$). When broken down into user intensity levels, results indicated that the proportion of White DAs compared to Black DAs was similar for all outpatient user levels, but significantly more

White DAs utilized non-outpatient services then Black DAs at all intensity levels. Regarding age, the proportion of the DAs who utilized only mental health treatment services ($\chi^2 = 236.54$, $p < .001$), only substance-related treatment services ($\chi^2 = 75.53$, $p < .001$), and all three treatment services ($\chi^2 = 10.31$, $p = .006$) differed significantly across age cohorts. Additionally, results were significantly different for treatment involving outpatient sessions ($\chi^2 = 81.49$, $p < .001$), two settings ($\chi^2 = 9.41$, $p = .01$), and the following levels of outpatient treatment utilization: low outpatient users (i.e., 1- 2 sessions), and all outpatient user intensity levels except moderate users (i.e., 8-12 sessions). Please see Table 3.31 for full results.

Mental health groups. Significant differences emerged across MAYSI-2 groups for all individual treatment types, combination of treatment types, and most user intensity levels (Table 3.32). Specifically, the proportion of DAs with positive screens were generally larger than other MAYSI-2 groups, with significant differences across groups for all outpatient user levels and most non-outpatient user levels. The only findings that failed to be significant involved only non-outpatient treatment ($\chi^2 = 2.95$, $p = .229$) and extreme non-outpatient treatment users with $\geq$7 stays/visits ($\chi^2 = 3.67$, $p = .159$). Since disorder type was strongly tied to type of treatment utilization, some of the analyses comparing the proportion of treatment users within each treatment type could not be conducted. With regards to treatment setting, findings showed significant differences across disorder groups for outpatient treatment utilization ($\chi^2 = 1418.44$, $p < .001$), non-outpatient treatment utilization ($\chi^2 = 73.48$, $p < .001$), utilization of two treatment settings ($\chi^2 = 376.55$, $p < .001$), and utilization of three treatment settings ($\chi^2 = 187.19$, $p < .001$). Results for disorder type were significant for all outpatient user intensity levels and non-outpatient user levels, with notably higher proportion of comorbid DAs using services than DAs with one type of disorder. For pre-detention treatment, significant differences emerged between groups; the prevalence rates for DAs with pre-detention treatment were significantly higher than DAs with no treatment for all individual treatment types, combination of treatment types, treatment settings, outpatient user intensity levels, and user intensity levels for non-outpatient treatment utilization.

Criminal history groups. Results for intensity of treatment service utilization were significantly different across violent offenders groups, recidivist groups, and re-detained/ incarcerated groups. As shown in Table 3.33, prevalence rates for DAs who were violent offenders upon detention entry were significantly higher for mental health treatment utilization ($\chi^2 = 84.01$, $p < .001$), substance-related treatment utilization ($\chi^2 = 7.04$, $p < .001$), combination of all three treatment types ($\chi^2 = 9.73$, $p < .001$), and outpatient treatment utilization ($\chi^2 = 21.29$, $p < .001$). For user intensity levels, a significantly higher proportion of violent offenders than non-violent offenders were extreme outpatient users (i.e., ≥23 sessions; $\chi^2 = 25.0$, $p < .001$). Significant results emerged for recidivism, with higher prevalence rates among recidivist DAs than non-recidivist DAs for all treatment types and treatment settings, except either/both treatment utilization ($\chi^2 = 0.86$, $p = .348$) and the combination of substance-related and either/both treatment utilization ($\chi^2 = 3.77$, $p = .055$). Additionally, there were significantly more recidivist DAs than non-recidivist DAs within all outpatient user intensity levels and levels of non-outpatient user intensity levels, except for extreme non-outpatient users (i.e., ≥7 stays/visits; $\chi^2 = .001$, $p = .99$). Finally, findings were significant for re-detained/incarcerated DAs versus other DAs for mental health treatment utilization ($\chi^2 = 36.07$, $p < .001$), the combination of mental health and substance-related treatment utilization ($\chi^2 = 69.03$, $p < .001$), and utilization of all three treatment types ($\chi^2 = 34.68$ $p < .001$). The proportion of re-detained/incarcerated DAs was significantly higher than other DAs for outpatient treatment utilization ($\chi^2 = 86.26$, $p < .001$), two treatment settings ($\chi^2 = 25.23$, $p < .001$), all three treatment settings ($\chi^2 = 17.76$, $p < .001$), as well as most intensity levels for outpatient and non-outpatient treatment (see Table 3.33).

Cohort groups. Intensity of treatment services for cohort one versus cohort two are displayed in Table 3.34. Prevalence rates were significantly higher for cohort one compared to cohort two for users of only outpatient services ($\chi^2 = 564.21$, $p < .001$), users of both outpatient and inpatient treatment services, all outpatient user intensity levels, and all non-outpatient user intensity levels except high (i.e., 5-6 visits/stays) and extreme users (i.e., ≥7 visits/stays).

3.9 Aim 1. Treatment Dropouts and Treatment Gaps

Findings pertaining to research question four within Aim 1 are listed in Table 3.35. Out of the 3207 DAs who utilized outpatient treatment within two years post-detention, 721 (22.5%) youth were early dropouts who terminated treatment after 1-3 sessions, including 342 (10.4%) DAs who dropped out of treatment after one session, 230 (7.2%) DAs who dropped out of treatment after two outpatient sessions, and 149 (4.6%) DAs who dropped out of treatment after three sessions. With regards to treatment type, a significantly lower percentage of DAs who utilized either/both outpatient treatment dropped out of treatment (n = 48 of 445, 10.8%) compared to the percentage of DAs who dropped out of mental health outpatient treatment (n = 512 of 2751, 18.6%; $\chi^2 = 7.49$, $p < .001$) and the percentage who dropped out of substance-related outpatient treatment (n = 160 of 833, 19.2%; $\chi^2 = 7.49$, $p < .001$). Potential reasons for treatment dropouts included 110 (16.4%) DAs who were incarcerated during the same month of dropouts and 4 (0.6%) DAs who were placed on an inpatient unit during the time of dropouts; however, there were no clear reasons for the majority of DAs who dropped out of treatment (n = 605, 84.0%).

For the 2789 DAs who obtained two or more outpatient sessions, approximately 1139 (40.6%) of these adolescents experienced at least one gap between outpatient sessions (e.g., 46-120 days between sessions of the same treatment type). A total of 700 (25.1%) DAs experienced one gap, 262 (9.4%) DAs experienced 2-3 gaps, and 71 (2.6%) DAs experienced ≥4 gaps for an average of 1.64 gaps (SD = 1.02, range = 1-7) (see Table 3.35). Potential reasons for gaps between outpatient sessions included 130 (11.5%) DAs who were incarcerated and 38 (33.6%) DAs who obtained inpatient treatment during the time of the treatment gaps. Similar to treatment dropouts, the majority of gaps in outpatient sessions could not be clearly explained (n = 965, 85.2%).

3.9.1 Aim 1. Treatment Dropouts and Treatment Gaps by Groups

Demographic groups. Differences in early termination from outpatient treatment, as well as gaps between outpatient sessions, across demographic groups are displayed in Table 3.36. The number of DAs who dropped out of outpatient treatment was not

significant for gender ($\chi^2 = .74$, $p = .209$), but was significant for race ($\chi^2 = 8.89$, $p = .003$) and age cohorts ($\chi^2 = 113.15$, $p < .001$). A pattern emerged in which dropout rates were larger among Black DAs ($n = 425$, 23.9%) than White DAs and larger among older DAs ($n = 227$, 19.3%) than younger DAs ($n = 112$, 12.0%). Paired *t*-tests indicated that the proportion of dropouts among older DAs was significantly higher than mid-age DAs ($\chi^2 = 94.09$, $p < .001$) and younger DAs ($\chi^2 = 542.28$, $p < .001$); the dropout rate was also significantly higher among mid-age DAs than younger DAs ($\chi^2 = 212.91$, $p < .001$). Given the small number of DAs who dropped out of treatment services due to detention/prison or inpatient stays, results are difficult to interpret. Findings suggest a significantly higher proportion of females compared to males ($\chi^2 = 15.53$, $p < .001$) may have dropped out of treatment due to placement in detention or prison.

Regarding gaps in outpatient treatment, findings were non-significant for gender and race. A significantly larger percentage of younger DAs ($n = 402$, 47.1%) experienced at least one gap in outpatient treatment services than mid-age DAs ($n = 476$, 38.66%; $\chi^2 = 41.28$, $p < .001$) and older DAs ($n = 255$, 34.05%; $\chi^2 = 451.40$, $p < .001$). In addition, there were significantly more mid-age DAs with a history of gaps between outpatient sessions than older DAs ($\chi^2 = 327.84$ $p < .001$). Being incarcerated emerged as a potentially significant factor to explain outpatient gaps across age cohorts. Specifically, the proportion of mid-age DAs ($n = 67$, 14.1%) who were placed in detention/prison during the same time frame as the treatment gaps was significantly higher than older DAs ($n = 20$, 7.8%; $\chi^2 = 0.22$, $p = .641$). The proportion of younger DAs incarcerated ($n = 43$, 10.7%) when they experienced gaps between outpatient sessions was also significantly higher than older DAs ($\chi^2 = 28.80$ $p < .001$).

Mental health groups. Dropping out of outpatient treatment services was significantly related to disorder type and pre-detention treatment utilization, but not MAYSI-2 groups (Table 3.37). Overall chi-square tests indicated non-significant differences across the three MAYSI-2 groups ($\chi^2 = 5.46$, $p = .065$), although paired tests showed significant differences between DAs with positive screens versus DAs who did not take the MAYSI-2 ($\chi^2 = 3.96$, $p < .001$). Across disorder type groups, the prevalence of early dropout was significantly higher among DAs with substance-related disorders (*n*

= 12, 47.7%) than DAs with mental disorders (n = 402, 25.0%; χ^2 = 69.90, p < .001) and comorbid DAs (n = 217, 15.7%; χ^2 = 188.88, p < .001). A significantly larger proportion of DAs with mental disorders than comorbid DAs (χ^2 = 169. 85, p < .001) also dropped out of outpatient treatment. When examining potential reasons for treatment dropout, a significantly higher proportion of comorbid DAs (n = 44, 20.3%) were in prison/detention at the time of dropout, compared to DAs with mental disorders (n = 47, 11.7%; χ^2 = 5.76, p = .007) and substance-related disorders (n = 5, 4.9%; χ^2 = 10.89, p = .001). For pre-detention treatment groups, dropout rates were significantly higher among adolescents with no history of treatment (n = 474, 27.2%) compared to adolescents with pre-detention treatment (n = 247, 16.8%; χ^2 = 49.18, p < .001); results for potential reasons to explain outpatient dropouts were all non-significant.

Similar to findings for outpatient dropouts, the prevalence of gaps between outpatient sessions was significantly different across disorder types and pre-detention treatment, but not MAYSI-2 groups. As displayed in the bottom portion of Table 3.37, findings across MAYSI-2 groups for gaps between outpatient sessions were non-significant (χ^2 = 0.11, p = .946). In contrast, the proportion of DAs with substance-related disorders that experienced treatment gaps was significantly smaller (n = 41, 24.1%) than DAs with mental disorders (n = 546, 39.4%; χ^2 = 101.84, p < .001) and DAs with both disorders (n = 546, 42.3%; χ^2 = 216.15, p < .001). There were no differences between the prevalence of DAs with mental disorders and comorbid DAs (χ^2 = 17.17, p = .029) for gaps in treatment. Interestingly, the percentage of DAs who experienced gaps between outpatient sessions was significantly higher among DAs with prior treatment (n = 636, 46.7%) than DAs without prior treatment (n = 497, 33.5%; χ^2 = 46.4, p < .001). Further, DAs who had pre-detention treatment were significantly more likely to be placed in prison/detention (χ^2 = 9.95, p = .002) and significantly less likely to be placed in inpatient treatment (χ^2 = 12.37, p = .001) during the time of treatment gaps.

Criminal history groups. As indicated in Table 3.38, dropping out of outpatient treatment was not associated with violent offender status; violent and non-violent offenders experienced similar rates of early dropout (χ^2 = 5.26, p = .022). In contrast, dropout rates were significantly lower among recidivists (n = 320, 19.2%) than non-

recidivists (n = 401, 26.1%; χ^2 = 22.04, p < .001) and re-detained/incarcerated DAs (n = 413, 20.2%) than other DAs (n = 308, 26.5%; χ^2 = 16.61, p < .001). Early dropouts may be partially explained by the significantly larger proportion of recidivists than non-recidivists (χ^2 = 37.72, p < .001) and re-incarcerated DAs than not re-incarcerated DAs (χ^2 = 36.8, p < .001) who were placed in prison/detention during the same month of treatment dropouts. As shown at the bottom of Table 3.38, prevalence rates for gaps between outpatient sessions were not significantly different for violent offender groups, recidivist groups, or re-detained/incarcerated groups. However, sub-analyses suggested that treatment gaps may be partially explained by differences in the number of DAs who were placed in prison/detention during the time of treatment gaps.

Cohort groups. Dropout rates from outpatient services were similar for cohort one (n = 291, pr = 22.3%) and cohort two (n = 429, pr = 22.6%; χ^2 = .06, p = .830), with non-significant differences between timing of dropouts (i.e., after 1 session, after 2 sessions) or reasons for dropouts (Table 3.39). Similarly, differences between cohort one and cohort two were non-significant for gaps between outpatient sessions (χ^2 = 1.73, p = .629), although there were more DAs from cohort one than cohort two who experienced gaps between mental health outpatient services (χ^2 = 8.48, p < .001) compared to more DAs from cohort two than cohort one who experienced gaps in either/both outpatient services (χ^2 = 12.25, p < .001).

Finally, Tables 3.40-3.41 summarize results discussed thus far and denote significant differences in post-detention treatment utilization within two years of detention release across all demographic, mental health, criminal history, and cohort groups.

3.10 Aim 3. Predictors of Treatment Utilization

Multicollinearity. Prior to running regression analyses, independent predictor variables were examined for multicollinearity and outlier values. All outlier cases were eliminated from analyses. Due to a strong correlation between age at detention entry and age at first contact with juvenile justice system (r = .76, p < .001), age at first contact was not included as a predictor variable. In addition, values for the variance inflation factors

(VIF) indicated significant multicollinearity between several disorder variables and pre-detention treatment utilization variables; thus, the number of variables included in stage three was reduced to the following predictors: conduct-related disorder (i.e., conduct disorder, oppositional defiant disorder; yes/no), non-conduct mental disorder (yes/no), substance-related disorder (yes/no), number of disorders, pre-detention outpatient treatment utilization (yes/no) and pre-detention non-outpatient treatment utilization (yes/no). As shown Table 3.42, the remaining predictors that were included in the logistic regression analyses satisfied established standards for multicollinearity (i.e., Inflation Factor ≤ 5.0; Tolerance $\geq .02$).

Summary statistics. Table 3.43 displays the model summary statistics for the six main hierarchical logistic regression analyses predicting post-detention treatment utilization within two years of detention release. For the prediction of any treatment utilization, chi-square tests revealed significant findings for all three stages of the regression model. The -2 log likelihood value decreased with each stage, while the Nagelkerke R^2 statistic increased, indicating that the addition of predictor variables at each stage improved the model and increased accuracy (i.e., classification percentage) for predicting treatment utilization. Results for the other regression models predicting utilization of different treatment types and treatment settings also yielded goodness of fit statistics that showed the models improved with the addition of predictors at each subsequent stage, in that the -2 log likelihood statistic decreased, the Nagelkerke R^2 statistic increased, and the classification accuracy percentage increased. Overall, the addition of mental health predictor variables in stage three appeared to make the most notable impact on the regression models, as evidenced by large increases in the Nagelkerke R^2 statistics and classification accuracy percentages for the models. However, the accuracy percentage showed a slow increase for substance-related treatment utilization, either/both treatment utilization, and non-outpatient treatment utilization; adding criminal history and/or mental health variables failed to notably increase classification accuracy, which suggest that demographic variables may be sufficient to predict post-detention utilization of these treatment services

As shown in Table 3.43, the final stage of the regression model predicting any treatment utilization yielded a Nagelkerke R^2 value of .476, meaning the sum of all predictor variables improved the model by 47.6%, compared to a null model with no predictors. With an overall classification accuracy of 80.0%, the regression model was able to accurately predict 80.0% of DAs as treatment users versus non-users within two years post-detention, based on the predictor variables included in the model. With regards to different types of treatment, the regression models were able to accurately classify 82.2% of DAs as users versus non-users of post-detention mental health treatment services, 89.9% of DAs as users versus non-users of post-detention substance-related treatment services, and 94.6% of DA as users versus non-users of either/both treatment services. Similarly, the regression models demonstrated good predictive accuracy for treatment settings, with 80.0% of DAs correctly classified as users versus nonusers of post-detention outpatient treatment services and 92.5% of DAs classified as users versus nonusers of non-outpatient treatment services.

Odds ratios. As noted in the prior paragraph, the overall set of predictors produced relatively strong models with good classification accuracy for predicting treatment utilization within two years post-detention. When examining predictors individually, findings identified several variables that significantly increased or decreased the likelihood of post-detention treatment. Tables 3.44-3.46 display the odds ratios and associated statistics for all predictors at the final stage of the regression analyses. For any treatment utilization, male gender (*OR* = 1.70, *CI* = 1.50-1.94), higher number of prior arrests (*OR* = 1.09, *CI* = 1.06-1.12), higher charge severity (*OR* = 1.09, *CI* = 1.03-1.16), being a violent offender (*OR* = 1.18, *CI* = 1.04-1.34), having a conduct disorder (*OR* = 7.18, *CI* = 2.41-22.97), having a non-conduct mental disorder (*OR* = 4.88, *CI* = 4.07-5.82), having a substance-related disorder (*OR* = 2.21, *CI* = 1.93-2.53), obtaining pre-detention outpatient treatment (*OR* = 1.02, *CI* = 1.00-1.21), and obtaining pre-detention non-outpatient treatment (*OR* = 1.43, *CI* = 1.20-1.71) significantly increased the likelihood of treatment utilization (see Table 3.44 for full results). Race and number of disorders were non-significant predictors, whereas having a mental and/or substance-related disorder emerged as the strongest predictors of treatment utilization.

As shown in Table 3.44, the following predictors were significantly associated with an increase in the likelihood of post-detention mental health treatment utilization: being male (*OR* = 1.44, *CI* = 1.26-1.65), higher number of prior arrests (*OR* = 1.05, *CI* = 1.02-1.08), having a conduct disorder (*OR* = 2.08, *CI* = 1.07-12.08), having a mental disorder (*OR* = 1.01, *CI* = 1.00-2.02), larger number of disorders (*OR* = 1.05, *CI* = 1.03-1.06), and pre-detention outpatient treatment (*OR* = 1.11, *CI* = 1.01-1.22). In contrast, Black race (*OR* = 0.91, *CI* = 0.82-1.00), older age (*OR* = 0.94, *CI* = 0.90-0.97), and having a substance-related disorder (*OR* = 0.63, *CI* = 0.54-0.72) were significantly associated with a decreased likelihood of mental health treatment utilization.

For substance-related treatment utilization (Table 3.45), DAs who were male (*OR* = 2.07, *CI* = 1.69-2.54), older at detention entry (*OR* = 1.33, *CI* = 1.15-1.59), had more prior arrests (*OR* = 1.08, *CI* = 1.05-1.12), diagnosed with a conduct disorder (*OR* = 1.41, *CI* = 1.09-1.83), diagnosed with a non-conduct mental disorder (*OR* = 1. 99, *CI* = 1.48-2.62), and diagnosed with a substance-related disorder (*OR* = 2.02, *CI* = 1.74-2.92) had a significantly increased likelihood of obtaining substance-related treatment services within two years post-detention. Interestingly, number of disorders was associated with a significantly decreased likelihood of substance-related treatment utilization (*OR* = 0.96, *CI* = 0.94-0.98). Finally, for both/either treatment utilization, findings indicated that DAs who were male (*OR* = 1.92, *CI* = 1. 48-2.51), older at detention entry (*OR* = 1.15, *CI* = 1.08-1.24), diagnosed with a conduct disorder (*OR* = 1.02, *CI* = 1.01-1.92), and diagnosed with a substance-related disorder (*OR* = 4.46, *CI* = 1.14-12.88) were significantly more likely to obtain both/either treatment services within two years post-detention. Similar to substance-related treatment, pre-detention treatment utilization did not significantly impact the likelihood of post-detention treatment utilization.

As shown in Table 3.46, the following variables were significantly associated with an increased likelihood of post-detention outpatient utilization: male gender (*OR* = 1.48, *CI* = 1.48-1.92), higher number of prior arrests (*OR* = 1.09, *CI* = 1.05-1.12), higher charge severity (*OR* = 1.09, *CI* = 1.02-1.16), being a violent offender (*OR* = 1.21, *CI* = 1.06-1.37), having a conduct-related disorder (*OR* = 7.05, *CI* = 2.26-13.85), having a mental disorder (*OR* = 4.98, *CI* = 4.14-6.00), having a substance-related disorder (*OR*

= .98, *CI* = 1.73-2.28), pre-detention outpatient treatment (*OR* = 1.05, *CI* = 1.01-1.22), and pre-detention non-outpatient treatment (*OR* = 1.26, *CI* = 1.08-1.48). None of the predictors significantly decreased the likelihood of outpatient treatment. Finally, higher number of prior arrests (*OR* = 1.06, *CI* = 1.03-1.14), conduct disorder (*OR* = 5.11, *CI* = 3.44-7.59), other mental disorder (*OR* = 1.96, *CI* = 1.30-2.95), substance-related disorder (*OR* = 2.05, *CI* = 1.67-2.53), number of disorders (*OR* = 1.14, *CI* = 1.11-1.20), and pre-detention non-outpatient treatment (*OR* = 1.24, *CI* = 1.09-1.40) were significantly associated with an increased likelihood of post-detention non-outpatient treatment utilization within two years post-detention. Black DAs faced a significantly decreased likelihood of non-outpatient treatment utilization (*OR* = 0.69, *CI* = 0.52-0.76).

3.10.1 Aim 3. Predictors of Treatment Utilization by Cohorts

Cohort one. Given that the MAYSI-2 and RAI were implemented in 2006, additional regression analyses were conducted to examine a possible time effect for cohort one (i.e., detained during 1998-2005) versus cohort two (i.e., detained during 2006-2011). As shown in Table 3.47, regression models predicting post-detention treatment use among cohort one showed models were significantly different ($p < .01$) then the null model with no predictors. Similar to the main regression analyses for the total sample, model summary statistics indicated better fitting models with each subsequent stage; specifically the -2 log likelihood decreased, while the Nagelkerke R^2 values and classification percentages increased. In comparing results for the overall sample versus cohort one, findings indicated slightly better fitting regression models for cohort one. For example, the Nagelkerke R^2 value was .476 and the classification percentage was 80.0% for predicting treatment utilization within two years post-detention among the entire sample, whereas the Nagelkerke R^2 value was .479 and the classification percentage was 82.1% for predicting treatment utilization among cohort one. Overall, findings for cohort one showed improved prediction models, with smaller log likelihood values, larger Nagelkerke R^2 values, and better classification percentages, with the exception of smaller Nagelkerke R^2 statistics for either/both treatment utilization and non-outpatient treatment utilization.

As noted above, the classification rate for treatment utilization among cohort one was 82.1%, meaning the set of independent predictors entered into the regression model was able to accurately predict 82.1% of DAs within cohort one as treatment users versus non-users within two years post-detention. Additionally, the logistic regression models for cohort one were able to accurately classify 84.4% of cohort one DAs as users versus non-users of post-detention mental health treatment services, 92.8% of cohort one DAs as users versus non-users of post-detention substance-related treatment services, and 96.8% of cohort one DA as users versus non-users of either/both treatment services (Table 3.47). With regards to treatment setting, 82.2% of cohort one DAs were correctly classified as users versus non-users of post-detention outpatient treatment services and 93.9% of cohort one DAs were accurately classified as users versus non-users of non-outpatient treatment services. Altogether, findings suggest that the total set of independent variables may be better suited to predict treatment utilization among DAs detained between 1998 and 2005 than DAs detained across the entire study time frame.

Logistic regression results for cohort one identified a slightly different set of significant predictors of treatment utilization (Table 3.48). With regards to treatment utilization among cohort one, being male (*OR* = 1.72, *CI* = 1.48-2.00), higher number of prior arrests (*OR* = 1.13, *CI* = 1.09-1.18), higher charge severity (*OR* = 1.09, *CI* = 1.01-1.08), being a violent offender (*OR* = 1.21, *CI* = 1.04-1.41), having a conduct disorder (*OR* = 9.74, *CI* = 1.14-20.73), having a mental disorder (*OR* = 5.54, *CI* = 4.42-6.95), having a substance-related disorder (*OR* = 1.77, *CI* = 1.50-2.09), obtaining pre-detention outpatient treatment (*OR* = 1.09, *CI* = 1.06-1.12), and obtaining pre-detention non-outpatient treatment (*OR* = 2.07, *CI* = 1.37-3.12) were significantly associated with an increased likelihood of treatment utilization (Table 3.49). Contrary to the main analyses for the total sample (Table 3.48), age was non-significant and number of disorders (*OR* = 0.97, *CI* = 0.95-0.99) emerged as a significant variable associated with decreased likelihood of treatment utilization. The same predictors were associated with a significantly increased likelihood of post-detention mental health treatment. However, number of disorders was no longer significant, while age (*OR* = 0.90, *CI* = 0.86-0.94) and

having a substance-related disorder (*OR* = 0.65, *CI* = 0.55-0.79) emerged as variables associated with a significantly decreased likelihood of mental health treatment utilization.

As shown in Table 3.50, the following predictors were associated with an increased likelihood of substance-related treatment utilization among cohort one: male gender (*OR* = 1.92, *CI* = 1.49-2.48), older age (*OR* = 1.23, *CI* = 1.14-1.32), number of prior arrests (*OR* = 1.17, *CI* = 1.10-1.24), conduct disorder (*OR* = 2.00, *CI* = 1.42-2.79), substance-related disorder (*OR* = 4.67, *CI* = 1.59-7.90), and pre-detention non-outpatient treatment (*OR* = 1.81, *CI* = 1.32-2.50). Variables associated with a decreased likelihood of substance-related treatment services included being a violent offender (*OR* = 0.71, *CI* = 0.55-0.91), non-conduct mental disorder (*OR* = 0.44, *CI* = 0.32-0.62), and larger number of disorders (*OR* = 0.96, *CI* = 0.93-0.99). For both/either treatment utilization, findings indicated that DAs who were male (*OR* = 1.87, *CI* = 1.30-2.67), older at detention entry (*OR* = 1.18, *CI* = 1.07-1.31), diagnosed with a conduct disorder (*OR* = 3.02, *CI* = 1.01-5.23), obtained pre-detention non-outpatient treatment (*OR* = 1.49, *CI* = 1.08-2.06), and obtained pre-detention outpatient treatment (*OR* = 1.01, *CI* = 1.00-1.02) were significantly more likely to obtain post-detention treatment services. Similar to other treatment types, race was not significantly associated with increased (or decreased) likelihood of post-detention treatment utilization.

As shown in Table 3.48, findings for post-detention outpatient treatment among cohort one were similar to findings from the main regression analyses for the total sample. Specifically, male gender (*OR* = 1.73, *CI* = 1.56-1.98), higher number of prior arrests (*OR* = 1.13, *CI* = 1.08-1.18), higher charge severity (*OR* = 1.09, *CI* = 1.01-1.17), being a violent offender (*OR* = 1.20, *CI* = 1.03-1.40), having a conduct-related disorder (*OR* = 14.57, *CI* = 3.69-25.93), having a mental disorder (*OR* = 5.80, *CI* = 4.60-7.31), having a substance-related disorder (*OR* = 1.62, *CI* = 1.37-4.91), pre-detention outpatient treatment (*OR* = 1.07, *CI* = 1.01-1.10), and pre-detention non-outpatient treatment (*OR* = 1.93, *CI* = 1.31-2.84) were significantly associated with an increased likelihood of outpatient treatment within two years post-detention. Older age at detention entry (*OR* = 0.94, *CI* = 0.91-0.98) and larger number of disorders (*OR* = 0.98, *CI* = 0.95-0.99) were associated with a decreased likelihood of outpatient treatment. Compared to the total

sample, the following three variables were identified as newly significant predictors of outpatient treatment among cohort one: age, number of disorders, and non-conduct mental disorder (Table 3.48). Finally, the following variables were associated with an increased likelihood of post-detention non-outpatient treatment utilization: number of prior arrests (*OR* = 1.09, *CI* = 1.03-1.16), conduct disorder (*OR* = 6.80, *CI* = 4.16-11.12), other mental disorder (*OR* = 2.47, *CI* = 1.50-4.07), substance-related disorder (*OR* = 1.69, *CI* = 1.31-2.20), number of disorders (*OR* = 1.13, *CI* = 1.09-1.15), and pre-detention non-outpatient treatment (*OR* = 2.03, *CI* = 1.52-2.79) (see Table 3.51). Being Black (*OR* = 0.68, *CI* = 0.54-0.86) and length of stay (*OR* = 0.99, *CI* = 0.98-1.00) were associated with decreased likelihood of non-outpatient treatment utilization. It should be noted that length of stay and non-conduct disorder were both significant predictors for cohort one, but non-significant for the total sample (see Table 3.48).

Cohort two. Table 3.52 displays the model summary statistics for logistic regression analyses for cohort two, with the addition of Risk Assessment Inventory (RAI) scores as a predictor in stage two and positive screen on Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2) as a predictor in stage three. Similar to results from the other regression analyses, goodness of fit indicators showed a better fitting model with each stage, in that the -2 log likelihood statistics decreased, the Nagelkerke R^2 values increased, and the classification accuracy percentage increased with the addition of predictors. Based on comparisons between findings for the overall sample, cohort one, and cohort two, adding RAI and MAYSI-2 failed to make a noticeable improvement in predicting treatment utilization post-detention. With the inclusion of these two predictors, the Nagelkerke R^2 value was .360 and the classification percentage was 80.0% for treatment utilization within two years post-detention. As shown in Tables 3.43 and 3.47, the Nagelkerke R^2 values were .476 and .479 and the classification percentages were 80.0% and 82.1% for the total sample and cohort one. Thus, the total set of predictors was slightly less accurate in predicting treatment utilization within two years post-detention for DAs in cohort one compared to cohort two. With regards to classification accuracy for the other treatment types and treatment settings, the regression models for cohort two were able to accurately classify 80.3% of DAs as users versus non-

users of post-detention mental health treatment, 84.5% of DAs as users versus non-users of post-detention substance-related treatment, 88.7% of DAs as users versus non-users of post-detention either/both treatment, 78.9% of DAs as users versus non-users of post-detention outpatient treatment, and 93.9% of as users versus non-users of post-detention non-outpatient treatment.

Regression analyses for treatment utilization among cohort two yielded somewhat similar findings as cohort one; however, several new predictors emerged as significant and several predictors impacted treatment in the opposite direction (i.e., decreased likelihood rather than increased likelihood) (Table 3.48). For any treatment utilization within two years post-detention, length of detention stay (*OR* = 1.01, *CI* = 1.00-1.20), conduct disorder (*OR* = 5.74, *CI* = 3.80-8.66), non-conduct mental disorder (*OR* = 2.86, *CI* = 1.91-4.27), substance-related disorder (*OR* = 2.20, *CI* = 2.37-4.32), and number of disorders (*OR* = 1.29, *CI* = 1.20-1.39) were associated with a significantly increased likelihood of treatment (Table 3.53). In contrast to findings for the overall sample (Table 3.48), older age (*OR* = 0.88, *CI* = 0.90-0.95), number of charges (*OR* = 0.79, *CI* = 0.64-0.99), and pre-detention non-outpatient treatment (*OR* = 0.68, *CI* = 0.55-0.85) were associated with decreased likelihood of post-detention treatment utilization. As shown in Table 3.53, significant variables for predicting post-detention mental health treatment utilization included the following: conduct disorder (*OR* = 7.37, *CI* = 1.03-11.98), non-conduct mental disorder (*OR* = 4.07, *CI* = 1.02-9.09), and higher number of disorders (*OR* = 1.38, *CI* = 1.28- 1.48). DAs who were older at detention entry (*OR* = 0.70, *CI* = 0.71-0.85), had substance-related disorders (*OR* = 0.45, *CI* = 0.33-0.62), and obtained pre-detention non-outpatient treatment (*OR* = 0.77, *CI* = 0.62-0.95) were less likely to obtain mental health treatment services. Contrary to prior analyses for the total sample and cohort one (Table 3.48), gender, prior arrests, and pre-detention outpatient treatment failed to remain significant predictors; the direction for pre-detention non-outpatient also changed from increased to decreased likelihood of treatment services.

Regarding substance-related treatment utilization among cohort two (Table 3.54), male gender (*OR* = 1.68, *CI* = 1.06-2.65), older age (*OR* = 1.20, *CI* = 1.08-1.34), and substance-related disorder (*OR* = 3.49, *CI* = 2.94-4.17) were associated with an increased

likelihood of treatment, whereas number of charges (*OR* = 0.71, *CI* = 0.51-0.98), conduct disorder (*OR* = 0.36, *CI* = 0.21-0.63), non-conduct mental disorder (*OR* = 0.43, *CI* = 0.34-.079), and pre-detention non-outpatient treatment (*OR* = 0.74, *CI* = 0.63-0.96) were associated with a decreased likelihood of treatment utilization. As shown in Table 48, number of charges emerged as a newly significant finding for cohort two, whereas prior arrests, violent offender, and number of disorders failed to remain significant predictors, which they were for the total sample and cohort one. Regarding both/either treatment utilization (Table 3.54), findings indicated that DAs who were male (*OR* = 1.92, *CI* = 1.16-3.13), older at detention entry (*OR* = 1.25, *CI* = 1.11-1.41), had higher number of prior arrests (*OR* = 1.06, *CI* = 1.01-1.11), diagnosed with a conduct disorder (*OR* = 2.01, *CI* = 1.05-2.23), diagnosed with a substance-related disorder (*OR* = 5.91, *CI* = 6.53-16.93), and had higher number of disorders (*OR* = 1.10, *CI* = 1.01-1.15) were more likely to utilize services; DAs who obtained pre-detention outpatient treatment (*OR* = 0.99, *CI* = 0.98-1.00) or pre-detention non-outpatient treatment (*OR* = 0.78, *CI* = 0.63-0.97) were less likely to utilize either/both services within two years post-detention.

As shown in Table 3.55, significant predictors associated with increased likelihood for outpatient treatment among cohort two included length of stay (*OR* = 1.01, *CI* = 1.00-1.20), conduct disorder (*OR* = 5.74, *CI* = 3.80-8.66), non-conduct mental disorder (*OR* = 2.86, *CI* = 1.91-4.27), substance-related disorder (*OR* = 3.20, *CI* = 2.37-4.32), number of disorders (*OR* = 1.29, *CI* = 1.19-1.39); predictors associated with decreased likelihood included older age (*OR* = 0.88, *CI* = 0.80-0.95), number of charges (*OR* = 0.79, *CI* = 0.64-0.99), and pre-detention non-outpatient treatment (*OR* = 0.68, *CI* = 0.55-0.85). Interestingly, gender, prior arrests, and pre-detention outpatient treatment were non-significant for cohort two, although they were significant predictors for the total sample and cohort one (Table 3.48). Finally, screening positively on the MAYSI-2 (*OR* = 2.56, *CI* = 1.61-4.09), having a conduct disorder (*OR* = 3.94, *CI* = 1.87-4.33), having a substance-related disorder (*OR* = 2.36, *CI* = 1.61-3.46), and larger number of disorders (*OR* = 1.24, *CI* = 1.29-1.31) were associated with a significantly increased likelihood of non-outpatient treatment utilization within two years post-detention for cohort two (Table 3.54). Black DAs were significantly less likely to obtain non-

outpatient treatment services than White DAs (*OR* = 0.62, *CI* = 0.43-0.89). Altogether, RAI scores and positive screens on the MAYSI-2 failed to serve as significant predictors of treatment utilization, except for non-outpatient treatment services.

3.11 Aim 4. Patterns of Treatment Utilization: Time to Treatment

Life table. To address research questions 1-2 within Aim 4, a series of survival analyses were conducted. The life table shown in Table 3.56 displays the main results for connection to care (i.e., time until first treatment utilization), divided into 3-month intervals for the two years following detention release years and 6-month intervals for the remaining time frame of the study. At the beginning of the study (i.e., date of detention release), a total of 9664 DAs were eligible for treatment. As shown in the life table, a total of 1582 (16.4%) DAs utilized treatment within the first 3-month time period, resulting in approximately 83.6% of the sample surviving as non-users (i.e., denoted as cumulative proportion surviving in the life table). The probability function was .055 (*SD* = .001), meaning participants had a 5.5% chance of utilizing treatment during the first time interval. The hazard ratio equaled 0.06 (*SD* = .00), which provides an estimate of treatment utilization by the end of the time interval, assuming a participant has survived to the start of the time interval (i.e., has not been censored—dropped out—or already obtained treatment). After one year post-detention, a total of 6820 DAs remained as non-users and 2843 DAs utilized their first treatment service; approximately 68% of non-user DAs were still surviving to utilize their first treatment service. The probability of treatment during that time interval (i.e., 9-12 months) equaled .008 (*SD* = .001) and the hazard rate equaled .01 (*SD* = .00).

At the time of the final time interval, which occurred at 14-year follow-up, a total of 216 DAs remained to utilize treatment and 3 DAs obtained their first treatment service (Table 3.56). After taking into account all the participants who utilized treatment and participants who were lost to attrition/censoring, approximately 22.0% of the sample remained to utilize treatment at the end of the study time frame. As shown across the time intervals of the life table, as the length of time from detention release (i.e., day 0) increased, the number of treatment users per time interval decreased. However, there

were still new treatment users within each individual time interval. Overall, approximately 1/3 of the sample utilized their first treatment service within 18 months of release from detention and another 1/3 of the sample utilized treatment between 18 months and the end of the study time frame; the remaining 1/3 of the sample survived as non-users of treatment services.

3.11.1 Aim 4. Time to Treatment by Groups

Table 3.57 shows the results for the series of Kaplan-Meier survival analyses conducted to examine differences in time to first treatment across groups of DAs. The table displays the percentage of treatment users versus non-users (i.e., censored cases), median (*Mdn*) days to first treatment utilization, and chi-square tests indicating whether survival curves depicting patterns of treatment utilization differed between groups. To aid in interpretation, please refer to Figures 3.1-3.23, which display the survival curves between comparison groups. Regarding treatment type, the curves for time (in days) to first substance-related treatment utilization and either/both treatment utilization crossed over time (Figure 3.2); however, results indicated that the survival curves for all three treatment types significantly differed at early follow-up (Wilcoxon = 86.65, $p < .001$), middle follow-up (Tarone-Ware = 82.882, $p < .001$), and long-term follow-up of the study time frame (Log Rank = 68.74, $p < .001$) (Table 3.57). Paired statistical tests showed that each type of treatment differed significantly from the other type, with DAs obtaining mental health treatment services significantly earlier than either/both services (Wilcoxon = 20.45, $p < .001$; Tarone-Ware = 23.40, $p < .001$ Log Rank = 24.70, $p < .001$) and substance-related services (Wilcoxon = 100.90, $p < .001$; Tarone-Ware = 89.10, $p < .001$; Log Rank = 61.21, $p < .001$). Regarding treatment setting, treatment users obtained outpatient treatment services within a median of 439.0 days (*CI* = 405.11-472.89), compared to non-outpatient treatment services within approximately 1528.0 days (*CI* = 1430.95-1625.05). As shown in Figure 3.3, the survival curve for time to first non-outpatient treatment diverged significantly from the survival curve for time to first outpatient treatment service, with significant differences over the entire study time frame (Table 3.57).

Demographic groups. Results for time (in days) to first treatment were significantly different for gender, race, and age cohorts (Table 3.57; Figures 3.4-3.6). Specifically, male DAs utilized treatment significantly earlier than female DAs (Figure 3.4), resulting in significantly different survival curves (Wilcoxon = 507.334, $p < .001$; Tarone-Ware = 540.08, $p < .001$; Log Rank = 454.37, $p < .001$) (Table 3.57). Black DAs also utilized treatment significantly earlier than White DAs (Figure 3.5), with significantly different survival curves over time (Wilcoxon = 21.08, $p < .001$; Tarone-Ware = 23.60, $p < .001$; Log Rank = 20.23, $p < .001$). Time to first treatment was significantly different between the three age groups, despite some interactions between the survival curves of age cohorts (Figure 3.6). Mid-age DAs utilized treatment within a significantly shorter number of days than younger DAs (Wilcoxon = 11.05, $p < .001$; Tarone-Ware = 24.15, $p < .001$, Log Rank = 39.80, $p < .001$) and older DAs (Wilcoxon = 12.54, $p < .001$; Tarone-Ware = 19.61, $p < .001$; Log Rank = 21.98, $p < .001$). Older DAs also had a significantly different curve than younger DAs (Wilcoxon = 1.78, $p = .009$; Tarone-Ware = 5.71, $p < .001$; Log Rank = 9.83, $p < .001$).

Mental health groups. As displayed in Table 3.57, patterns for time (in days) to first treatment differed significantly across MAYSI-2 groups (Wilcoxon = 1868.98, $p < .001$; Tarone-Ware = 2053.05, $p < .001$, Log Rank = 2213.78, $p < .001$). As shown in Figure 3.7, DAs who never completed the MAYSI-2 required a significantly larger number of days to obtain treatment post-detention than DAs with positive screens on the MAYSI-2 (Wilcoxon = 1619.75, $p < .001$; Tarone-Ware = 756.57, $p < .001$, Log Rank = 1854.06, $p < .001$) and DAs with non-positive screens on the MAYSI-2 (Wilcoxon = 700.49, $p < .001$; Tarone-Ware = 756.57, $p < .001$, Log Rank = 805.91, $p < .001$). Such results should be interpreted with caution, however, given that youth who did not complete the MAYSI-2 were detained during the early portion of the study (i.e., 1998-2005) and had much longer follow-up periods to utilize treatment, compared to youth who completed the MAYSI-2. Thus, the length of follow-up in which DAs were able to obtain their first treatment differed greatly between the MAYSI-2 screened groups (i.e., cohort two) and the non-screened group (i.e., cohort one). When restricting analyses to DAs within cohort two, DAs with positive screens and DAs with non-positive screens on

the MAYSI-2 had similarly shaped survival curves that were significantly different in the long-term (Log Rank = 2.70, $p = .01$), but not significantly different in the short-term (Wilcoxon = 5.18, $p = .023$) or middle of the study time frame (Tarone-Ware = 4.47, $p = .034$).

Patterns for time to first treatment utilization were significantly different between disorder groups throughout the entire time frame of the study (Log rank = 81.91, $p < .001$; Wilcoxon = 109.18, $p < .001$; Tarone-Ware = 102.69, $p < .001$) (Table 3.57). As shown in Figure 8, the survival curve for DAs with substance-related disorders was divergent from the curves for DAs with mental disorders and DAs with both disorders (Figure 3.8). DAs with only substance-related disorders tended to obtain post-detention treatment services significantly later than DAs with mental disorders (Wilcoxon = 81.98, $p < .001$; Tarone-Ware = 71.15 $p < .001$, Log Rank = 47.58, $p < .001$) and those with both disorders (Wilcoxon = 110.38, $p < .001$; Tarone-Ware = 105.30, $p < .001$, Log Rank = 84.28, $p < .001$). Further, the curve for the mental disorder group differed significantly from the curve for the comorbid group (Wilcoxon = 8.15, $p < .001$; Tarone-Ware = 9.64, $p < .001$, Log Rank = 13.33, $p < .001$). Finally, the Kaplan-Meier survival analyses showed significant differences in time to first treatment between pre-detention treatment groups. As displayed in Figure 3.9, DAs who obtained pre-detention treatment utilized treatment services within a significantly shorter number of days after detention release than DAs who did not obtain pre-detention treatment (Log rank = 3493.60, $p < .001$; Wilcoxon = 3604.13, $p < .001$; Tarone-Ware = 3617.47, $p < .001$).

Criminal history groups. As shown in Table 3.57, DAs with more serious criminal history tended to utilize treatment within a significantly smaller number of days upon community reentry than other DAs. The survival curve (Figure 3.10) for violent offenders differed significantly from the survival curve for non-violent offenders across all study time points (Wilcoxon= 28.82, $p < .001$; Tarone-Ware = 33.32, $p < .001$; Log Rank = 33.92, $p < .001$). Violent offenders obtained treatment services within approximately 454.0 days (*CI* = 493.21-502.97), whereas non-violent offenders did not obtain treatment services until approximately 580.0 days (*CI* = 405.02-502.97) post-detention. Similarly, recidivists utilized treatment much sooner than non-recidivists, with

significantly different survival curves for the two recidivism groups (Figure 3.11) across all time points (Wilcoxon= 170.48, $p < .001$; Tarone-Ware = 182.07, $p < .001$; Log Rank = 153.46, $p < .001$). In contrast, results were non-significant for re-detained/incarcerated groups; DAs from both groups obtained post-detention treatment within a similar number of days and survival curves (Figure 3.12) were non-significantly different throughout the study time frame (see Table 3.57 for full results).

3.11.2 Time to Treatment: Cox Regression Analyses

Table 3.58 displays the results for the Cox proportional hazards regression analyses predicting risk of first treatment utilization *at any time* during study follow-up. Results indicated that the regression models were significantly different then null models with no predictors, with significant chi-square tests ($p \leq .01$) at stage one, stage two, and stage three of all six main models predicting risk of treatment utilization. Adding predictors at each stage significantly improved the model, as evidenced by decreased -2 log likelihood values and significant chi-square results for the change statistics (i.e., results for addition of predictors, compared to previous stage).

The Cox regression analyses identified several variables with significant hazard ratios for predicting treatment utilization. As shown in Table 3.59, number of prior arrests (*HR* = 1.04, *CI* = 1.02-1.06), charge severity (*HR* = 1.04, *CI* = 1.01-1.07), being a violent offender (*HR* = 1.11, *CI* = 1.05-1.18), being re-detained/incarcerated (*HR* = 1.19, *CI* = 1.12-1.26), having a conduct disorder (*HR* = 3.03, *CI* = 2.3-3.24), having a non-conduct mental disorder (*HR* = 3.92, *CI* = 3.62-4.23), having a substance-related disorder (*HR* = 1.95, *CI* = 1.83-2.07), and obtaining pre-detention outpatient treatment (*HR* = 1.51, *CI* = 1.40-1.64) were all associated with increased risk of utilizing treatment services *at any time* during the 14 years of the study time frame. The majority of these variables also emerged as significant predictors of mental health treatment utilization post-detention. Specifically, number of prior arrests (*HR* = 1.03, *CI* = 1.02-1.05), charge severity (*HR* = 1.05, *CI* = 1.01-1.07), violent offender (*HR* = 1.09, *CI* = 1.03-1.15), re-detained/incarcerated (*HR* = 1.19, *CI* = 1.11-1.27), conduct disorder (*HR* = 3.46, *CI* = 3.22-3.72), non-conduct disorder (*HR* = 9.97, *CI* = 8.96-11.10), number of disorders (*HR*

= 1.02, *CI* = 1.01-1.03), pre-detention outpatient treatment (*HR* = 1.35, *CI* = 1.24-1.47), and pre-detention non-outpatient treatment (*HR* = 1.12, *CI* = 1.01-1.42 were all associated with significantly increased risk of treatment services, whereas older age (*HR* = 0.93, *CI* = 0.92-0.95) yielded a significantly decreased risk of mental health treatment utilization post-detention.

As shown in Table 3.60, variables associated with significantly increased risk of substance-related treatment *at any time* post-detention included male gender (*HR* = 1.22, *CI* = 1.11-1.33), larger number of prior arrests (*HR* = 1.03, *CI* = 1.02-1.05), getting re-detained/incarcerated (*HR* = 1.20, *CI* = 1.09-1.31), having a conduct disorder (*HR* = 1.99, *CI* = 1.79-2.01), greater number of disorders (*HR* = 1.02, *CI* = 1.01-1.04), and pre-detention outpatient treatment utilization (*HR* = 2.34, *CI* = 2.05-2.65); predictors associated with decreased risk of services included larger number of charges (*HR* = 0.94, *CI* = 0.88-0.99), having a non-conduct mental disorder (*HR* = 0.77, *CI* = 0.70-0.86), and pre-detention non-outpatient treatment utilization (*HR* = 0.72, *CI* = 0.60-0.85). Interestingly, having a substance-related disorder failed to emerge as a significant variable of substance-related treatment. For either/both treatment utilization *at any time* post-detention, male gender (*HR* = 1.21, *CI* = 1.08-1.35), number of prior arrests (*HR* = 1.05, *CI* = 1.03-1.06), violent offender (*HR* = 1.14, *CI* = 1.02-1.29), re-detained/incarcerated (*HR* = 1.13, *CI* = 1.00-1.27), conduct disorder (*HR* = 2.77, *CI* = 2.43-3.17), non-conduct mental disorder (*HR* = 4.22, *CI* = 3.38-5.27), number of disorders (*HR* = 1.05, *CI* = 1.04-1.07), and pre-detention outpatient treatment (*HR* = 2.53, *CI* = 2.15-2.97) were linked to an increased risk of treatment services, whereas pre-detention non-outpatient treatment had a significant hazard ratio indicating decreased risk of either/both treatment services (*HR* = 0.76, *CI* = 0.63-0.92).

Results for Cox regression analyses predicting first post-detention outpatient treatment utilization and first post-detention non-outpatient treatment utilization are listed in Table 3.61. Regarding utilization of outpatient treatment services *at any time*, significant variables included age (*HR* = 0.95, *CI* = 0.93-0.96), number of pre-detention arrests (*HR* = 1.04, *CI* = 1.03-1.05), charge severity (*HR* = 1.05, *CI* = 1.01-1.06), violent offender (*HR* = 1.12, *CI* = 1.06-1.19), re-detained/ incarcerated (*HR* = 1.18, *CI* = 1.11-

1.25), conduct disorder (*HR* = 3.12, *CI* = 2.91-3.34), non-conduct mental disorder (*HR* = 4.02, *CI* = 3.71-4.36), substance-related disorder (*HR* = 1,79, *CI* = 1.69-1.91), number of disorders (*HR* = 1.01, *CI* = 1.00-1.02), and pre-detention outpatient treatment (*HR* = 1.54, *CI* = 1.42-1.67). Regarding utilization of non-outpatient treatment services *at any time* post-detention, the following variables were associated with increased risk of treatment services: number of prior arrests (*HR* = 1.03, *CI* = 1.01-1.05), conduct disorder (*HR* = 2.06, *CI* = 1.81-2.34), non-conduct mental disorder (*HR* = 5.73, *CI* = 4.77-6.88), substance-related disorder (*HR* = 3.32, *CI* = 2.93-3.76), number of disorders (*HR* = 1.07, *CI* = 1.06-1.08), pre-detention outpatient treatment (*HR* = 1.48, *CI* = 1.24-1.77), and pre-detention non-outpatient treatment (*HR* = 1.34, *CI* = 1.09-1.66). In contrast, Black race (*HR* = 0.75, *CI* = 0.67-0.83) and age (*HR* = 0.93, *CI* = 0.90-0.96) were associated with significantly decreased likelihood of non-outpatient treatment services.

3.11.3 Time to Treatment by Cohorts

Cohort one. When restricting the Cox regression analyses to only DAs from cohort one, results were generally similar to findings for the total sample. As displayed in Table 3.62, the model summary statistics for the six regression models indicated that models were significantly different than null models and that entering predictor variables at each stage produced significantly better fitting models. Compared to the total sample (Table 3.63), the same predictors significantly impacted the risk of treatment utilization *at any time* during the study time frame. Specifically, number of prior arrests (*HR* = 1.05, *CI* = 1.03-1.06), charge severity (*HR* = 1.05, *CI* = 1.02-1.08), violent offender (*HR* = 1.17, *CI* = 1.10- 1.25), re-detained/incarcerated (*HR* = 1.14, *CI* = 1.07-1.22), conduct disorder (*HR* = 3.44, *CI* = 3.18-3.72), non-conduct mental disorder (*HR* = 5.01, *CI* = 4.58-5.48), substance-related disorder (*HR* = 1.88, *CI* = 1.75-2.02), and pre-detention outpatient treatment (*HR* = 2.10, *CI* = 1.89-2.34) were associated with increased risk of post-detention treatment utilization; older age at detention entry (*HR* = 0.96, *CI* = 0.94-0.98) was associated with decreased risk of treatment utilization (Table 3.64). For utilization of mental health treatment services among cohort one at any time upon community reentry, larger number of prior arrests (*HR* = 1.04, *CI* = 1.03-1.06), higher

charge severity (*HR* = 1.04, *CI* = 1.01-1.08), being a violent offender (*HR* = 1.15, *CI* = 1.08-1.24), getting re-detained/incarcerated (*HR* = 1.15, *CI* = 1.07-1.24), having a conduct disorder (*HR* = 3.83, *CI* = 3.53-4.16), having a non-conduct mental disorder (*HR* = 13.57, *CI* = 11.98-15.36), larger number of disorders (*HR* = 1.01, *CI* = 1.00-1.02), and obtaining pre-detention outpatient treatment (*HR* = 1.92, *CI* = 1.72-2.14) were associated with increased risk, whereas age was associated with decreased risk (*HR* = 0.95, *CI* = 0.93-0.97) of mental health treatment utilization. In contrast to findings for the total sample, pre-detention non-outpatient treatment failed to remain a significant variable associated with increased risk of treatment utilization among cohort one (Table 3.63).

As shown in Table 3.65, significant variables associated with increased risk for substance-related treatment at any time post-detention included male gender (*HR* = 1.16, *CI* = 1.05-1.29), number of prior arrests (*HR* = 1.05, *CI* = 1.02-1.08), violent offender (*HR* = 1.12, *CI* = 1.01-1.24), re-detained/incarcerated (*HR* = 1.14, *CI* = 1.02-1.27), conduct disorder (*HR* = 2.43, *CI* = 2.15-2.75), substance-related disorder (*HR* = 1.27, *CI* = 1.20-3.74), number of disorders (*HR* = 1.02, *CI* = 1.01-1.03), and pre-detention outpatient treatment (*HR* = 3.91, *CI* = 3.28-4.65). DAs with mental disorders (*HR* = 0.72, *CI* = 0.64-0.81) and pre-detention non-outpatient treatment (*HR* = 0.55, *CI* = 0.41-0.74) faced a decreased risk of substance-related treatment utilization post-detention. Interestingly, being a violent offender and having a substance-related disorder emerged as significant predictors for cohort one, whereas these variables were not significant for the total sample; in addition, number of charges was no longer significant for cohort one (Table 3.63). Significant variables associated with increased risk of either/both treatment utilization among cohort one included male gender (*HR* = 1.16, *CI* = 1.02-1.32), number of prior arrests (*HR* = 1.06, *CI* = 1.03- 1.10), violent offender (*HR* = 1.29, *CI* = 1.13-1.48), re-detained/ incarcerated (*HR* = 1.06, *CI* = 1.03-1.10), conduct disorder (*HR* = 2.69, *CI* = 2.31-3.14), non-conduct mental disorder (*HR* = 7.62, *CI* = 5.43- 10.70), number of disorders (*HR* = 1.05, *CI* = 1.03-1.06), and pre-detention outpatient treatment (*HR* = 3.58, *CI* = 2.83-4.53) (Table 3.65). The utilization of pre-detention non-outpatient treatment failed to remain a significant variable for cohort one, whereas this predictor was significant for analyses for the total sample (Table 3.63).

As displayed in Table 3.66, results for utilization of outpatient treatment services at any time post-detention among cohort one DAs revealed that number of prior arrests (*HR* = 1.05, *CI* = 1.03-1.07), charge severity (*HR* = 1.04, *CI* = 1.01-1.07), violent offender (*HR* = 1.17, *CI* = 1.09-1.25), re-detained/ incarcerated (*HR* = 1.14, *CI* = 1.06-1.22), conduct disorder (*HR* = 3.53, *CI* = 3.26-3.83), mental disorder (*HR* = 5.23, *CI* = 4.76-5.74), substance-related disorder (*HR* = 1.69, *CI* = 1.57-1.82), and pre-detention outpatient treatment (*HR* = 2.19, *CI* = 1.96-2.43) were significant variables associated with increased risk of outpatient treatment utilization. In contrast, age (*HR* = 0.96, *CI* = 0.94-0.97) and pre-detention non-outpatient treatment (*HR* = 0.81, *CI* = 0.67-0.98) were associated with decreased risk of outpatient treatment utilization. Compared to the total sample (Table 3.63), pre-detention non-outpatient treatment was a new significant predictor for cohort one, whereas number of disorders was no longer significant (as it was for the total sample). Finally, with regards to non-outpatient treatment utilization at any time among cohort one (Table 66), the following variables significantly increased the risk of treatment services: prior arrests (*HR* = 1.05, *CI* = 1.02-1.09), conduct disorder (*HR* = 2.20, *CI* = 1.91-2.52), non-conduct mental disorder (*HR* = 6.53, *CI* = 5.35-7.37), substance-related disorder (*HR* = 3.25 *CI* = 2.83-3.73), number of disorders (*HR* = 1.06, *CI* = 1.05-1.07), and pre-detention outpatient treatment (*HR* = 2.26, *CI* = 1.83-2.81); Black race (*HR* = 0.80, *CI* = 0.70-0.87) and age (*HR* = 0.96, *CI* = 0.93-0.99) were associated with significantly decreased risk of non-outpatient treatment services. Although pre-detention non-outpatient treatment was a significant variable for regression analyses based on the total sample, this variable had no impact on the risk of post-detention non-outpatient treatment services for DAs in cohort one (Table 63).

Cohort two. Tables 3.67-3.70 show the results for the Cox proportional hazards regression analyses among DAs within cohort two, with the addition of RAI scores and MAYSI-2 positive screen as predictor variables. Consistent with analyses discussed earlier, overall model summary statistics and change statistics at each stage were significant and showed increasingly better fitting models at each stage (Table 3.67). Significant variables associated with increased risk for treatment utilization at any time post-detention for cohort two including being re-detained/incarcerated (*HR* = 1.33, *CI* =

1.14-1.54), having a conduct disorder (*HR* = 1.93, *CI* = 1.62-3 2.30), having a non-conduct mental disorder (*HR* = 2.10, *CI* = 1.71-2.57), having a substance-related disorder (*HR* = 2.11, *CI* = 1.83-2.43), and larger number of disorders (*HR* = 1.06, *CI* = 1.05-1.08) (Table 3.68). Variables associated with decreased risk for post-detention treatment utilization included Black race (*HR* = 0.82, *CI* = 0.71-0.94), older age (*HR* = 0.88, *CI* = 0.84-0.93), and pre-detention outpatient treatment (*HR* = 0.74, *CI* = 0.62-0.88). As displayed in Table 3.63, most of the criminal history variables (e.g., prior arrests, charge severity, and violent offender) that significantly impacted treatment utilization for the total sample were no longer significant; race emerged as a new significant predictor for cohort two. As noted in Table 3.68, hazard ratios associated with increased risk for mental health treatment utilization among cohort two were re-detained/incarcerated (*HR* = 1.33, *CI* = 1.12-1.58), conduct disorder (*HR* = 2.76, *CI* = 2.25-3.40), non-conduct mental disorder (*HR* = 4.24, *CI* = 3.21-5.61), and number of disorders (*HR* = 1.07, *CI* = 1.06-1.09). Black race (*HR* = 0.80, *CI* = 0.68-0.93), older age (*HR* = 0.85, *CI* = 0.81-0.90), and pre-detention outpatient treatment (*HR* = 0.63, *CI* = 0.52-0.77) were associated with decreased risk of post-detention mental health treatment services. RAI scores and MAYSI-2 positive screens were not significantly related to treatment utilization. Similar to findings for any treatment utilization, most criminal history variables that were significant among the total sample and cohort two failed to remain significant for predicting mental health treatment utilization, while Black race emerged as a newly significant finding associated with decreased risk of post-detention treatment services.

With regards to substance-related treatment at any time among cohort two, only four variables emerged as significant (Table 3.69). Male gender (*HR* = 1.52, *CI* = 1.09-2.12), re-detained/ incarcerated (*HR* = 1.32, *CI* = 1.04-1.68), and number of disorders (*HR* = 1.06, *CI* = 1.03-1.09) were linked to significantly increased risk of post-detention treatment services, whereas pre-detention non-outpatient treatment (*HR* = 0.60, *CI* = 0.44-0.83) was associated with a decreased risk of post-detention substance-related treatment services. In contrast to findings for the total sample and cohort one, most of the criminal history variables (e.g., prior arrests, charge severity) and disorder variables (e.g., mental disorder, substance-related disorder) failed to significantly impact risk for

treatment utilization (Table 3.63). Regarding either/both treatment utilization at any time post-detention among cohort two, male gender (*HR* = 1.61, *CI* = 1.12-2.31), re-detained/incarcerated (*HR* = 4.54, *CI* = 1.16-2.05), conduct disorder (*HR* = 2.62, *CI* = 1.74-3.96), non-conduct mental disorder (*HR* = 1.83, *CI* = 1.23- 2.72), and number of disorders (*HR* = 1.11, *CI* = 1.08-1.13) were associated with increased risk of treatment services (Table 3.69). Black race (*HR* = 0.72, *CI* = 0.56-0.93), older age (*HR* = 0.89, *CI* = 0.81-0.98), and pre-detention outpatient treatment (*HR* = 0.70, *CI* = 0.52-0.96) were associated with decreased risk of either/both services during the study time frame. Compared to the total sample, Black race and age became newly significant variables, while prior arrests and violent offender became non-significant variables (Table 63).

As shown in Table 3.70, Cox regression analyses for outpatient treatment utilization at any time among DAs in cohort two identified re-detained/incarcerated (*HR* = l.30, *CI* = 1.12-1.52), conduct disorder (*HR* = 1.96, *CI* = 1.64-2.33), non-conduct mental disorder (*HR* = 2.07, *CI* = 1.96-2.54), substance-related disorder (*HR* = 2.03, *CI* = 1.77-2.35), and number of disorders (*HR* = 1.06, *CI* = 1.05-1.08) as variables associated with increased risk of post-detention outpatient treatment. In contrast, Black race (*HR* = 0.86, *CI* = 0.74-0.99), age (*HR* = 0.88, *CI* = 0.84-0.92) and pre-detention outpatient treatment (*HR* = 0.74, *CI* = 0.63-0.88) emerged as variables associated with decreased risk of treatment utilization. With the exception of re-detained/incarcerated, criminal history variables that significantly impacted treatment utilization for the total sample and cohort one were no longer significant (Table 3.63). In addition, Black race and pre-detention outpatient treatment emerged as significant predictors of outpatient treatment services. Lastly, significant variables associated with an increased likelihood for non-outpatient treatment utilization at any time among DAs in cohort two included prior arrests (*HR* = 1.07, *CI* = 1.03-1.10), positive screen on the MAYSI-2 (*HR* = 1.68, *CI* = 1.04-2.70), non-conduct mental disorder (*HR* = 3.88, *CI* = 1.79-8.41), substance-related disorder (*HR* = 3.23, *CI* = 2.09-4.98), and number of disorders (*HR* = 1.11, *CI* = 1.08-1.14) (Table 3.70). Male gender (*HR* = 0.61, *CI* = 0.41-0.90), Black race (*HR* = 0.42, *CI* = 0.29-0.60), and older age (*HR* = 0.78, *CI* = 0.68-0.89) were all associated with decreased likelihood of non-outpatient treatment services. As noted in Table 3.63,

utilization of pre-detention treatment services failed to remain significant for cohort two. Of note, positive screen on the MAYSI-2 emerged as a significant variable for the first time and was associated with increased risk of non-outpatient treatment utilization.

3.12 Aim 4. Patterns of Treatment Utilization: Time to Termination

Life table. Table 3.71 and Figure 3.13 displays the results for time (in days) involved in continuous outpatient treatment services until treatment termination, starting with the date of first outpatient session and ending with date of final continuous (i.e., no gaps) outpatient treatment session. As shown in the life table, a total of 6234 DAs obtained at least one outpatient treatment session. By the end of the first time interval at 3-months follow-up, a total of 1656 DAs terminated treatment services, leaving approximately 73% of the sample surviving to continue utilization of outpatient treatment. The probability of dropping out within the first three months of detention release was approximately 8.9% (*SD* = .002) and the hazard rate equaled .10 (*SD* = .00). At one year post-detention, a total of 3390 DAs remained involved in outpatient treatment, meaning approximately 2844 DAs terminated treatment and approximately 50% of the sample remained engaged in outpatient treatment. Altogether, the majority of DAs terminated outpatient treatment within two years of detention release. Treatment termination occurred during all time intervals, with the final treatment termination occurring within nine years of release from detention.

Kaplan-Meier survival analyses**.** Table 3.72 displays the main results from the Kaplan-Meier survival analyses for days involved in continuous outpatient treatment until terminating treatment. Timing of termination differed significantly across treatment type, with DAs terminating substance-related services much sooner than mental health services and either/both services (Figure 3.14). The survival curve for terminating mental health treatment differed significantly from the curves for terminating substance-related outpatient treatment (Wilcoxon= 56.58, $p < .001$; Tarone-Ware = 56.88, $p < .001$; Log Rank = 53.84, $p < .001$) and terminating either/both outpatient treatment (Wilcoxon= 25.15, $p < .001$; Tarone-Ware = 26.06, $p < .001$; Log Rank = 21.09, $p < .001$) (Table 3.72). Survival curves for substance-related outpatient treatment and either/both

outpatient treatment were also significantly different over time (Wilcoxon= 78.77, $p < .001$; Tarone-Ware = 82.61, $p < .001$; Log Rank = 79.99, $p < .001$). Altogether, the survival curves for the three treatment types (Figure 3.14) did not intersect and remained significantly different throughout the entire time frame of the study (Wilcoxon= 96.18, $p < .001$; Tarone-Ware = 97.40 $p < .001$; Log Rank = 89.23, $p < .001$).

3.12.1 Time to Termination by Groups

Demographic groups. Consistent with survival analyses results for time to first treatment services, results were significant for time to treatment termination across gender, race, and age cohorts (see Table 3.72 and Figures 3.15-3.17). Survival curves (Figure 3.15) differed significantly between males versus females in the short-term (Log Rank = 144.72, $p < .001$), middle, (Wilcoxon = 135.66, $p < .001$) and long-term (Tarone-Ware = 165.85, $p < .001$) of the study time frame (Table 3.72); females utilized outpatient services for a significantly longer number of days (*Mdn* = 746.0 days, *CI* = 671.90-820.07) than males (*Mdn* = 356.0 days, *CI* = 328.30-383.71). Regarding race, White DAs remained involved in outpatient treatment for approximately 639.0 days (*CI* = 574.98-702.02), which was significantly longer than the approximately 369.0 days (*CI* = 335.30-402.70) that Black DAs remained involved in outpatient treatment. The survival curves (Figure 3.16) for White DAs versus Black DAs were notably distinct and remained significantly different over time (Wilcoxon= 70.25, $p < .001$; Tarone-Ware = 72.37, $p < .001$; Log Rank = 54.44, $p < .001$). Regarding age, survival curves (Figure 3.17) for time involved in outpatient treatment significantly differed across the three age cohorts (Wilcoxon= 151.75, $p < .001$; Tarone-Ware = 128.77, $p < .001$; Log Rank = 71.99, $p < .001$). A clear pattern emerged in which older DAs terminated outpatient treatment earlier than mid-age DAs (Wilcoxon = 27.99, $p < .001$; Tarone-Ware = 21.97, $p < .001$, Log Rank = 12.55, $p < .001$), who in turn terminated outpatient treatment earlier than younger DAs (Wilcoxon = 69.91, $p < .001$; Tarone-Ware = 61.18, $p < .001$; Log Rank = 33.71, $p < .001$).

Mental health groups. Kaplan-Meier survival analyses produced significant results for MAYSI-2 groups, disorder groups, and pre-detention groups regarding time

until treatment termination (Table 3.72). Regarding MAYSI-2 groups, DAs who did not complete the MAYSI-2 remained in outpatient services longest, with a median of approximately 552.0 days (*CI* = 710.56-855.44), compared to approximately 244.0 days (*CI* = 201.74-286.26) for DAs with non-positive screens and approximately 398.0 days (*CI* = 361.34-434.66) for DAs with positive screens on the MAYSI-2. As displayed in Figure 3.18, the survival curves across the three groups intersected, but these curves were significantly different from each other in the short-term (Wilcoxon = 84.88, $p < .001$), middle (Tarone-Ware = 154.39, $p < .001$), and long-term (Log Rank = 155.15, $p < .001$). As noted earlier, since the follow-up periods differed drastically for these groups (i.e., cohort one versus cohort two), results should be interpreted with caution. When comparing just DAs who completed the MAYSI-2 (and were all detained post-2005), adolescents with positive screens remained involved in outpatient treatment services significantly longer than adolescents with non-positive screens throughout the entire study time frame (Wilcoxon= 29.50, $p < .001$; Tarone-Ware = 30.01, $p < .001$; Log Rank = 26.64, $p < .001$) (Table 3.72).

Survival curves for the three disorder groups (Figure 3.19) were significantly different from each other over time (Wilcoxon = 1197.91, $p < .001$; Tarone-Ware = 1185.34, $p < .001$; Log Rank = 1044.45, $p < .001$) (Table 3.72). Specifically, comorbid DAs remained engaged in outpatient treatment longer than DAs with mental disorders (Wilcoxon= 555.53, $p < .001$; Tarone-Ware = 513.78, $p < .001$; Log Rank = 395.44, $p < .001$) and DAs with substance-related disorders (Wilcoxon= 1262.40, $p < .001$; Tarone-Ware = 1241.91, $p < .001$; Log Rank = 1034.70, $p < .001$). In addition, DAs with mental disorders remained involved in outpatient treatment significantly longer than DAs with substance-related disorders (Wilcoxon= 269.80, $p < .001$; Tarone-Ware = 296.3, $p < .001$; Log Rank = 295.80, $p < .001$). Regarding pre-detention treatment groups, survival curves (Figure 3.20) were significantly different throughout the 14 years of the study (Wilcoxon= 4.72, $p < .001$; Tarone-Ware = 11.32, $p < .001$; Log Rank = 331.85, $p < .001$). As noted in Table 3.72, DAs with pre-detention treatment remained involved in outpatient treatment for a significantly larger number of days than DAs with no history of pre-detention treatment.

Criminal history groups. Similar to findings for time to first treatment utilization, survival analyses revealed significant differences in time to terminate from treatment across violent offender groups, recidivist groups, and re-detained/incarcerated groups (Table 3.72). The survival curves (Figure 3.21) differed significantly between violent offenders and nonviolent offenders (Wilcoxon= 12.85, $p < .001$; Tarone-Ware = 17.34, $p < .001$; Log Rank = 20.77, $p < .001$), with violent offenders remaining in outpatient treatment for a median of approximately 519.0 days (*CI* = 394.72-467.28) compared to non-violent offenders remaining in treatment for approximately 431.0 days (*CI* = 462.41-575.59) (Table 3.72). Similarly, recidivist youth utilized outpatient treatment for significantly more days than non-recidivist youth ($Mdn_{\text{recidivist}}$ = 544.0 days vs. Mdn_{non} = 342.0 days) and re-detained/incarcerated DAs utilized outpatient treatment for significantly more days than other DAs ($Mdn_{\text{re-detained}}$ = 532.0 days vs. Mdn_{not} = 343.0 days). The survival curves (Figure 3.22) for the two recidivism groups were significantly different (Wilcoxon= 42.11, $p < .001$; Tarone-Ware = 34.4, $p < .001$; Log Rank = 22.70, $p < .001$), as were the survival curves (Figure 3.23) for the two re-detained/incarcerated groups (Wilcoxon= 37.74, $p < .001$; Tarone-Ware = 31.90, $p < .001$; Log Rank = 21.08, $p < .001$) (see Table 3.72 for more details).

3.12.2 Time to Termination: Cox Regression Analyses

Table 3.73 displays the model summary statistics and change statistics for the Cox proportional hazards regression analyses predicting time until terminating outpatient treatment. Results from the chi-square tests indicate that overall models were significantly different than null models; the addition of predictors at each stage reduced the -2 log likelihood and significantly improved the models. With regards to terminating from outpatient treatment *at any time* post-detention (Table 3.74), the following variables were associated with increased risk of termination: male gender (*HR* = 1.34, *CI* = 1.27-1.42), older age (*HR* = 1.06, *CI* = 1.04-1.08), higher number of prior arrests (*HR* = 1.04, *CI* = 1.03-1.05), more severe charge (*HR* = 1.04, *CI* = 1.01-1.07), conduct disorder (*HR* = 1.19, *CI* = 1.12-1.28), pre-detention non-outpatient treatment (*HR* = 1.51, *CI* = 1.40-163), and pre-detention outpatient treatment (*HR* = 1.26, *CI* = 1.13-1.40). In addition, DAs

who were violent offenders (*HR* = 0.94, *CI* = 0.89-0.99), diagnosed with non-conduct mental disorders (*HR* = 0.59, *CI* = 0.55-0.65), diagnosed with substance-related disorders (*HR* = 0.90, *CI* = 0.85-0.95), and diagnosed with more disorders (*HR* = 0.94, *CI* =0.91-0.97) faced a decreased risk of terminating from post-detention outpatient treatment. Results were similar for mental health outpatient treatment, in that male gender (*HR* = 1.25, *CI* = 1.17-1.34), age (*HR* = 1.05, *CI* = 1.03-1.07), number of prior arrests (*HR* = 1.05, *CI* = 1.03-1.06), conduct disorder (*HR* = 1.15, *CI* = 1.06-1.25), pre-detention outpatient treatment (*HR* = 1.32, *CI* = 1.17-1.50), and pre-detention non-outpatient treatment (*HR* = 1.32, *CI* = 1.17-1.50) were associated with increased risk of treatment termination (Table 3.74). Larger number of disorders (*HR* = 0.94 *CI* = 0.93-0.96) and non-conduct mental disorder (*HR* = 0.42, *CI* = 0.37-0.45) yielded decreased risk of terminating mental health outpatient treatment during the study time frame.

As shown in Table 3.75, significant variables associated with termination from substance-related outpatient treatment *at any time* post-detention included male gender (*HR* = 1.73, *CI* = 1.51-1.97), older age (*HR* = 1.12, *CI* = 1.08-1.16), number of prior arrests (*HR* = 1.04, *CI* = 1.03-1.05), number of charges (*HR* = 1.08, *CI* = 1.02-1.15), charge severity (*HR* = 1.34, *CI* = 1.11-1.62), and pre-detention outpatient treatment (*HR* = 1.13, *CI* = 1.11-1.62). DAs with substance-related disorders (*HR* = 0.94, *CI* = 0.92-0.96) and greater number of disorders (*HR* = 0.94, *CI* = 0.91-0.97) had decreased risk of terminated substance-related outpatient treatment. Finally, the following variables were associated with significantly increased risk of termination from either/both outpatient treatment *at any time* post-detention: older age (*HR* = 1.13, *CI* = 1.07-1.20), larger number of prior arrests (*HR* = 1.03, *CI* = 1.01-1.06), and pre-detention outpatient treatment (*HR* = 1.89, *CI* = 1.47-2.42). Having a non-conduct mental disorder (*HR* = 0.40, *CI* = 0.28-0.55) and larger number of disorders (*HR* = 0.94, *CI* = 0.93-0.96) were associated with decreased risk of termination from post-detention either/both outpatient treatment.

3.12.3 Time to Termination by Cohorts

Cohort one. As shown on Table 3.76, Cox regression analyses for termination from outpatient treatment among cohort one produced regression models that were significantly different than null models. With the exception of either/both outpatient treatment, the addition of predictor variables at each stage generated significantly better fitting models, as indicated by decreased -2 log likelihood values and significant change statistics. With regards to either/both outpatient treatment, the regression model for stage three, with all predictors entered into the analyses was the only significant model.

Compared to findings based on the total sample, the Cox regression models predicting treatment termination among cohort one yielded slightly different results (see Table 3.77 for direct comparisons). For termination from any outpatient treatment among cohort one, the following variables were associated with an increased risk of termination at any time post-detention: male gender (*HR* = 1.27, *CI* = 1.19-1.36), higher number of prior arrests (*HR* = 1.04, *CI* = 1.02-1.06), conduct disorder (*HR* = 1.16, *CI* = 1.07-1.25), and pre-detention outpatient treatment (*HR* = 1.20, *CI* = 1.08-1.34) (Table 3.78). Variables associated with decreased risk of terminating outpatient treatment included being a violent offender (*HR* = 0.93, *CI* = 0.87-0.99), having a non-conduct mental disorder (*HR* = 0.62, *CI* = 0.56-0.68), having a substance-related disorder (*HR* = 0.91, *CI* = 0.85-0.98), and larger number of disorders (*HR* = 0.95, *CI* = 0.94-0.96). As shown in Table 3.77, results were similar for the total sample and cohort one, with the exception that age, charge severity, and pre-detention non-outpatient treatment were no longer significant predictors of termination among DAs in cohort one.

With regards to terminating mental health outpatient treatment for cohort one, male gender (*HR* = .19, *CI* = 1.09-1.29), larger number of prior arrests (*HR* = 1.35, *CI* = 1.01-1.55), conduct disorder (*HR* = 1.11, *CI* = 1.01-1.22), and pre-detention outpatient treatment (*HR* = 1.25, *CI* = 1.11-1.41) emerged as significant variables associated with increased risk of termination. In contrast, non-conduct mental disorder (*HR* = 0.40, *CI* = 0.35-0.47) and higher number of disorders (*HR* = 0.94, *CI* = 0.93-0.96) were associated with decreased risk of termination from post-detention mental health outpatient treatment. When restricting analyses to only DAs within cohort one, age and pre-

detention non-outpatient treatment were not significant variables associated with terminating mental health treatment, whereas these variables were significant predictors for the total sample (Table 3.77).

As shown in Table 3.79, significant variables associated with increased risk of terminating substance-related outpatient treatment among cohort one included male gender (*HR* = 1.60, *CI* = 1.38-1.85), age (*HR* = 1.07, *CI* = 1.02-1.12), and larger number of prior arrests (*HR* = 1.07, *CI* = 1.03-1.11). DAs with substance-related disorders (*HR* = 0.90, *CI* = 0.84-0.97) and more disorders (*HR* = 0.95, *CI* = 0.93-0.98) faced significantly decreased risk of termination from post-detention substance-related outpatient treatment. Contrary to findings for the total sample, number of charges, charge severity, conduct disorder, non-conduct mental disorder, and pre-detention outpatient treatment failed to remain significant variables for cohort one with regards to risk of termination from substance-related outpatient treatment services (Table 3.77). For termination from either/both post-detention outpatient treatment among cohort one, age (*HR* = 12.10, *CI* = 1.02-1.18) was associated with increased risk, while length of detention stay (*HR* = 0.98, *CI* = 0.97-0.99), mental disorder (*HR* = 0.29, *CI* = 0.17-0.51) and number of disorders (*HR* = 0.95, *CI* = 0.93-0.97) were associated with decreased risk of terminating services (Table 3.79). As noted in Table 3.77, compared to findings for the total sample, length of stay emerged as a newly significant variable and prior arrests failed to remain significant in impacting the risk of termination from either/both outpatient treatment among DAs in cohort one.

Cohort two. Table 3.80 displays the model summary statistics and change statistics for the Cox regression analyses for treatment termination among cohort two, with the addition of RAI scores and MAYSI-2 positive screen (yes/no) as independent predictors. Results from the chi-square tests indicate that the four regression models were significantly different than null models with no predictors. The addition of predictors at stage one and stage three significantly improved the models; however, the entry of criminal history variables at stage two (including RAI scores) failed to generate better fitting regression models. The following variables were associated with significantly increased risk of termination from post-detention outpatient treatment

among cohort two: age (*HR* = 1.37, *CI* = 1.31-1.42), larger number of prior arrests (*HR* = 1.02, *CI* = 1.00-1.03), charge severity (*HR* = 1.09, *CI* = 1.03-1.16), pre-detention non-outpatient treatment (*HR* = 1.19, *CI* = 1.03-1.27), and pre-detention outpatient treatment (*HR* = 1.31, *CI* = 1.13-1.53). In contrast, DAs diagnosed with non-conduct mental disorders (*HR* = 0.53, *CI* = 0.45-0.63), substance-related disorders (*HR* = 0.68, *CI* = 0.61-0.71), and more disorders (*HR* = 0.91, *CI* = 0.90-0.93) faced a decreased risk of terminating post-detention outpatient treatment. As shown in Table 3.77, male gender, violent offender, and conduct disorder were all significant variables associated with treatment termination for the total sample and cohort one, but these variables were non-significant for cohort two.

Regarding mental health outpatient treatment among DAs in cohort two, variables associated with increased risk of termination included male gender (*HR* = 1.19, *CI* = 1.01-1.40), age (*HR* = 1.63, *CI* = 1.25-1.36), number of prior arrests (*HR* = 1.02, *CI* = 1.00-1.04), pre-detention non-outpatient treatment (*HR* = 1.37, *CI* = 1.14-1.64), and pre-detention outpatient treatment (*HR* = 1.43, *CI* = 1.18- 1.68) (Table 3.81). Significant variables associated with decreased risk of termination included RAI scores (*HR* = 0.98 *CI* = 0.97-0.99), non-conduct mental disorder (*HR* = 0.45, *CI* = 0.35-0.58), substance-related disorder (*HR* = 0.67, *CI* = 0.58-0.78), and larger number of disorders (*HR* = 0.92, *CI* = 0.90-0.94). Compared to prior analyses for the total sample and cohort one, substance-related disorders emerged as a significant variable for cohort two, whereas conduct disorder was no longer associated with risk of terminating mental health outpatient treatment (Table 3.77). It should be noted that RAI scores emerged as a significant variable; this marked the only regression analysis in which RAI scores were significant.

As shown in Table 3.82, four variables were significantly associated with terminating post-detention substance-related outpatient treatment among DAs in cohort two. Specifically, male gender (*HR* = 1.56, *CI* = 1.04-2.33) and older age (*HR* = 1.47, *CI* = 1.34-1.62) were linked to an increased risk, whereas substance-related disorder (*HR* = 0.78, *CI* = 0.44-0.93) and number of disorders (*HR* = 0.89, *CI* = 0.85-0.94) were linked to a decreased risk of termination. When considering results based on the total sample

(Table 3.77), charge number, charge severity, conduct disorder, non-conduct disorder, and pre-detention outpatient treatment were significant variables for the total sample, but non-significant variables for cohort two. Finally, with regards termination of post-detention either/both outpatient treatment among cohort two, older age (*HR* = 1.52, *CI* = 1.33-1.73) and length of stay (*HR* = 1.02, *CI* = 1.01-1.03) were associated with significantly higher risk of termination. Mental disorder (*HR* = 0.52, *CI* = 0.32-0.86) and larger number of disorders (*HR* = 0.90, *CI* = 0.86-0.94) were associated with lower risk of terminating from either/both outpatient treatment services (Table 3.82). Compared to findings for the total sample and cohort one (Table 3.77), charge number and pre-detention outpatient treatment were no longer significant variables and length of stay produced significant hazard ratios in the opposite direction for cohort one versus cohort two. Finally, screening positively on the MAYSI-2 failed to significantly impact the risk of termination from post-detention outpatient treatment during the study time frame.

CHAPTER 4. DISCUSSION

4.1 Discussion

This longitudinal study represents one of the only projects to carefully examine mental health and substance-related treatment data within the detained adolescent (DA) population over an extended period of time (Paskar, 2008; Teplin et al., 2012) in order to better understand treatment utilization patterns within this population, address gaps within the literature, and identify areas for future research. By sampling a large number of DAs for a total of 14 years, the study was able to achieve its primary purpose and four study aims involving a cross-sectional exploration of post-detention treatment utilization, examination of differences in post-detention treatment utilization among DA groups, identification of predictors of post-detention treatment utilization, and investigation of longitudinal patterns of post-detention service utilization over time. Study findings mark an important contribution to the literature by helping to frame and better understand the relationships between high rates of mental health and substance use problems (Fazel et al., 2008; Shufelt & Cocozza, 2006; Wasserman et al., 2002), low rates of service utilization (Hussey et al., 2008; Paskar, 2008; Trupin et al., 2004), and high rates of recidivism among DAs (Abram et al., 2008; Grunwald et al., 2010). Key findings and recommendations for future research are discussed below.

4.2 Criminal History Outcomes

First, several important findings emerged related to criminal history. Consistent with other research of detained adolescents (Sedlak, 2009; Sedlak & Bruce, 2010), the majority of participants in the sample had contact with the juvenile justice system prior to being placed in detention and most were arrested for conduct-related charges, property-related charges, or substance-related charges. More importantly, the DAs in this study

had negative long-term outcomes that are common among juvenile justice-involved youth. Specifically, roughly two out of three DAs were re-arrested following release from detention, with about 20% of DAs recidivating within three months of reentry into the community and about 40% of DAs recidivating within two years of reentry into the community. In addition, approximately 54% of the sample had a second detention stay and 16% of the sample was incarcerated in prison. Again, the majority of DAs experienced these outcomes within two years of release from detention. As found in prior research (Grunwald et al., 2010; Harrison, 2001), such findings highlight the revolving door problem, in which DAs are stuck in an ongoing cycle of juvenile justice system involvement by being repeatedly arrested, detained, released, re-arrested, re-detained, and sometimes placed in the adult prison population. Being stuck in the revolving door of the juvenile justice system is problematic because it reduces the likelihood of obtaining evidence-based mental health treatment services and interferes with successful reintegration into the community (Bullis et al., 2002; Calley, 2012; Samuel, 2015). Findings from this study therefore highlight the need for additional research that examines ways to reduce and ideally resolve the revolving door problem faced by many juvenile justice-involved youth.

Studies of detained adolescents have shown that males and racial/ethnic minorities tend to be disproportionately targeted and involved in the juvenile justice system (Bostwick, & Ashley, 2009; Rozie-Battle, 2002); the current study also found evidence of such gender and racial disparities. With regards to gender, the initial sample of detained adolescents contained significantly more males than females (i.e., about 62.7% versus 37.3%) and significantly more males than females were re-arrested and re-detained following release from detention. These findings may reflect true differences, in that males engage in more frequent and/or serious criminal behavior and are therefore more heavily involved in the juvenile justice system (Office of Juvenile Justice and Delinquency Prevention, 2013; Veysey, 2003). This would explain the fact that males in the sample averaged more pre-detention contacts, higher number of criminal charges, more severe criminal charges, higher RAI scores, and higher prevalence of violent offenses than females in the sample. Alternatively, it is possible that gender differences

stem from preferential treatment of females over males by authority figures, who are more likely to punish, arrest, and/or detain males than females (Bostwick, & Ashley, 2009; Cauffman et al., 2005).

Interestingly, gender differences did not emerge in this study for rates of incarceration in prison facilities. Although this finding is unexpected and contrary to other research studies (Barrett, Katsiyannis, & Zhang, 2006; Bostwick & Ashley, 2009), it is important to note that commitment to DOC prison facilities was fairly rare among the sample (i.e., about 16%) and likely reserved for adolescents who committed extremely serious crimes (e.g., murder, homicide, rape) (Barrett et al., 2006). Thus, being incarcerated may be strongly tied to severity of crime, rather than demographic factors like gender. Additional support for this possibility is that rates of incarceration failed to differ significantly between Black DAs and White DAs, despite clear racial differences (discussed below) for almost all other criminal history variables.

Similar to findings for gender, the percentage of Black DAs was notably higher than White DAs in the initial detention sample, as well as among recidivists and re-detained youth. Black DAs averaged younger age of first contact with the juvenile justice system, more arrests prior to detention, higher prevalence of violent offenses, and higher RAI scores than White DAs. Although not discussed in the Results section, these racial differences in criminal activity remain significant when considering race and gender together. That is, when restricting analyses by gender, results continue to show more severe criminal activity (e.g., higher severity of charges, more prior arrests) and more serious criminal history outcomes (e.g., recidivism, re-detention) among Black females compared to White females, as well as Black males compared to White males.

Altogether, findings may be interpreted as reflecting true racial differences, with minority youth being more likely than White youth to engage in criminal activity. Alternatively, many researchers have suggested that racial differences are most likely caused by bias and discrimination among law enforcement officers who disproportionately arrest Black youth in the community and among court officials who disproportionately place Black youth in detention centers or prison facilities (Maschi et al., 2008; Towberman, 1994; Wolf, 2008). This bias against Black DAs is fairly apparent

when considering that study findings applied to both Black males and Black females, thereby eliminating the argument made by some researchers that racial disparities seem to largely impact Black males, rather than Black females (Bostwick & Ashley, 2009). Moreover, according to the United States Census Bureau, the demographic distribution of adolescents in Marion County was 69.1% White and 25.5% Black in 2000 and 61.8% White and 27.5% Black in 2010, whereas the distribution of the sample during the same time frame was 34.8% White and 58.6% Black (and 6.5% Other). The marked divergence between the racial distributions of the general population and the detained adolescent population in this study provides strong evidence of prejudice and unfair treatment against Black youth within the juvenile justice system, which is consistent with prior research (Hoytt, Schiraldi, Smith, & Zeidenberg, 2001; Isaacs, 1992; Wolf, 2008).

4.3 Mental Health Outcomes

Besides criminal history outcomes, several important findings emerged pertaining to the mental health status of detained adolescents. First and foremost, findings showed high rates of mental health and substance-related concerns within the sample. Approximately 68% of DAs who completed the Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2) screened positively on the measure, meaning they were experiencing significant behavioral health concerns during their detention stay that likely required additional assessment and treatment (Grisso et al., 2001; Vincent et al., 2008). Furthermore, almost 73% of participants were diagnosed with a mental disorder and/or substance-related disorder, 65.7% of DAs met criteria for at least one mental disorder, 35.6% of DAs met criteria for at least one substance-related disorder, and 39.6% of DAs were comorbid for both types of disorders. To put such rates into context, consider that the prevalence of such disorders among the general adolescent population is only about 15%-20% (Robertson et al., 2004; Hoeve et al., 2013), which is markedly lower than the rates found in the current study, as well as other research (Fazel et al., 2008; Hussey et al., 2008; Paskar, 2008; Sedlak & Bruce, 2010). Moreover, the prevalence of substance-related disorders, mood disorders (40.1%), and conduct disorders (34.9%) were actually lower in this study than prior epidemiological studies of detained

adolescents (Fazel et al., 2008; Shelton, 2001; Teplin et al., 2006). Overall, current findings not only highlight the substantial mental health concerns found among DAs, but also add to the growing literature indicating that the detained adolescent population is a vulnerable and high-risk population in desperate need of appropriate mental health and substance-related treatment services (as discussed in more detail below).

In addition to prominent behavioral health needs, findings also revealed interesting patterns between demographic variables and mental health variables. With regards to gender, females tended to endorse higher overall symptomology and more severe mental health concerns than males, whereas males tended to have more severe substance-related concerns than females. For example, a significantly higher proportions of females than males screened positively on the MAYSI-2 (about 81.2% versus 66.8%) and met criteria for a mental disorder (about 38.9% versus 35.8%); a higher proportion of males than females met criteria for a substance-related disorder (about 8.1% versus 4.8%). Further, being female was significantly correlated with higher MAYSI-2 scores, higher number of mental disorders, and comorbidity, while being male was significantly correlated with having a substance-related disorder and higher number of substance-related disorders. Altogether, current findings fit well with other research suggesting more significant mental health concerns in female DAs compared to male DAs (Robertson et al., 2004; Veysey, 2003; Vincent et al., 2008). As mentioned earlier, the differential treatment of males and females within the legal system may account for such findings. Specifically, females are less likely to be arrested and detained (Bostwick, & Ashley, 2009; Office of Juvenile Justice and Delinquency Prevention, 2013), so female DAs tend to be the most problematic and deviant females involved in the juvenile justice system, who may also have the most severe mental health problems (Hussey et al., 2008; Veysey, 2003).

Of the few studies that have examined mental disorders and substance-related disorders separately (Aarons et al., 2004; Domalanta, Risser, Roberts, & Risser, 2003; Paskar, 2008), results have largely followed the pattern found in this study (i.e., higher prevalence of mental disorders in females and higher prevalence of substance-related disorders in males). However, this distinction is not widely discussed and represents an

important finding with implications for connecting DAs to appropriate treatment services. Specifically, it may be more efficient and cost-effective for staff and providers within the juvenile justice system to refer and/or recommend female DAs for mental health interventions and refer and/or recommend male DAs for substance-related interventions. Given the limited data currently available, however, additional research is needed to investigate the efficacy of such a system.

Interestingly, study findings revealed a pattern of divergent results for mental health concerns versus substance-related concerns for age, much like findings for gender. Analogous to findings for females versus males, younger DAs (age 11-13) tended to have more prominent mental health problems, with significantly more younger and mid-aged DAs than older DAs screening positively on the MAYSI-2 (approximately 71.8% versus 71.1% versus 66.5%) and meeting criteria for any disorder (approximately 77.6% versus 73.1% versus 68.4%). Being younger upon detention entry (like being female) was significantly associated with having any disorder, having a conduct disorder, and larger number of mental disorders. Conversely, being older upon detention entry (like being male) was associated with having a substance-related disorder and larger number of substance-related disorders.

To my knowledge, research has yet to fully examine differences in behavioral health status across age cohorts, thereby making it difficult to explain current findings. It is reasonable to suppose that DAs who are younger during their first detention stay are likely to be serious offenders who represent the most deviant youth involved in the juvenile justice system, much like detained females. These youth may also be more likely to have serious mental health concerns, particularly conduct-related issues (Kates et al., 2014; Sedlak & Bruce, 2010), thereby resulting in higher prevalence of mental disorders in younger DAs than older DAs (Aalsma et al., 2012b). The higher prevalence of substance-related disorders among older DAs than younger DAs may be explained by the onset of substance use. Typically, adolescents do not start experimenting heavily with substances until ages 14-15 years (Aarons et al., 2004; Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Thus, younger DAs, who are only 11-13 years at

detention entry, are less likely to have experimented and/or developed substance-related disorders than their older counterparts, who are 16-18 years at detention entry.

With regards to differences in mental health outcomes for race, findings clearly showed more prominent mental health concerns among White DAs than Black DAs. Specifically, a significantly higher percentage of White DAs compared to Black DAs screened positively on the MAYSI-2 (about 75.7% vs. 67.6%), met criteria for a mental disorder (about 73.9% vs. 60.8%), met criteria for a substance-related disorder (about 43.5% versus 30.8%), and met criteria for comorbidity (about 37.5% vs. 23.4%). Being White was also significantly correlated with higher MAYSI-2 scores, larger number of mental disorders, and larger number of substance-related disorders. In general, findings are consistent with the literature, in which White DAs tend to have more severe symptomology than Black DAs and are more likely to meet criteria for a mental disorder, as well as multiple disorders (Soenksen et al., 2015; Teplin et al., 2012; Vincent et al., 2008). However, findings from a large meta-analysis based on approximately 70,000 youth from 283 juvenile justice facilities indicated that mental health concerns among DAs may not actually differ by race (Vincent et al., 2008); rather, racial differences may be due to White DAs being more likely than minority DAs to report their symptoms and/or providers being biased against minority DAs, resulting in higher likelihood of White DAs receiving psychiatric diagnoses. Based on findings from their meta-analysis, Vincent and colleagues (2008) noted, "One cannot conclude that there are consistent, cross-site racial differences in the presence of symptoms among youths in the juvenile justice system (pp. 289)." Inconsistencies and discrepancies across racial groups may therefore reflect differences in the behaviors of DAs and/or providers, rather than true differences in mental health concerns and treatment needs.

4.4 Aim 1. Post-Detention Treatment Utilization

Given that the current literature provides inconsistent and varied findings regarding treatment utilization among DAs, one of the primary aims of the study involved a cross-sectional exploration of post-detention treatment utilization among DAs. This exploration yielded important findings related to this population's use of mental health

and substance-related treatment service upon community reentry. First and foremost, results revealed post-detention prevalence rates of approximately 66.6% for any treatment utilization, as well as 56.9% for mental health treatment utilization, 26.6% for substance-related treatment utilization, and 17.1% for either/both treatment utilization (i.e., unclear type of service). As a comparison, the meta-analysis I conducted (White et al., under review), based on 32 studies, yielded post-detention prevalence rates of 34.3% for mental health treatment, 29.0% for substance-related treatment, and 27.7% for either/both treatment. Thus, compared to the results of the meta-analysis, current estimates for any treatment service utilization and mental health treatment utilization were notably higher than expected, whereas estimates for substance-related treatment utilization and both/either treatment utilization were fairly consistent with the literature.

It should be noted, however, that the longitudinal studies included in the meta-analysis (Bullis et al., 2004; Hussey et al., 2007; Teplin et al., 2005; Trupin et al., 2004) tracked DAs for one to three years after detention release, whereas the current study tracked participants for one to fourteen years. As a more accurate comparison to prior work, prevalence estimates for treatment utilization within two years of detention release for this sample were 36.7% for any treatment utilization, 31.4% for mental health treatment utilization, 10.4% for substance related treatment utilization, and 5.4% for either/both treatment utilization. Using these estimates, current prevalence rates for mental health treatment services appear to be similar to other studies (Paskar, 2008; Teplin et al., 2005), with the unexpected finding of notably low utilization of substance-related services.

With regards to limited utilization of substance-related treatment, study findings revealed significantly higher utilization of mental health services than substance-related services for both outpatient and non-outpatient treatment services. Specifically, about 55.5% of DAs utilized mental health outpatient treatment and 18.6% utilized non-outpatient treatment, compared to only 23.5% of DAs who utilized substance-related outpatient treatment and 10.1% who utilized non-outpatient treatment during the entire study time frame. Findings that more adolescents received mental health services than substance-related services is somewhat surprising, since substance use programs are the

most commonly offered services in juvenile justice facilities and judges are more likely to mandate court-ordered substance-related treatment than mental health treatment (Desai et al., 2006). In addition, substance use is strongly associated with increased risk of chronic and/or violent delinquency and higher rates of recidivism (Bath et al., 2013; Colins, Vermeiren, Vreugdenhil, Van den Brink, Doreleijers, & Broekaert, 2011), which should theoretically prompt efforts within the juvenile justice system to ensure DAs obtain substance-related treatment upon reentry into the community.

Several factors may account for current findings. First, the prevalence of mental disorders among DAs was higher than substance-related disorders (about 65.7% versus 35.6%), so high rates of mental health service utilization may simply be related to more DAs in need of such services. However, this does not fully explain findings, since only 37.0% of all DAs with substance-related disorders and only 26.3% of comorbid DAs obtained services within two years of detention release. At the same time, over 90% of DAs with substance-related disorders eventually obtained treatment services by the end of the study time frame. Given that adolescents are often resistant to tackling substance-related concerns (Becan, Knight, Crawley, Joe, & Flynn, 2014), the delayed timing for treatment utilization may reflect the longer time it takes youth to become ready and willing to participate in substance-related treatment. Alternatively, findings may be explained by the fact that effective mental health treatments (e.g. multisystemic therapy, family functional therapy) typically address comorbid issues, often producing positive outcomes related to both mental health and substance-related symptomology (Darnell & Schuler, 2015; Lipsey, 2011; Sexton, & Turner, 2010). Thus, staff within the juvenile justice system may be intentionally referring and/or connecting DAs to mental health services in the community, rather than substance-related services, because such services are more comprehensive and effective treatment options (Hoeve et al., 2013). Similarly, DAs participating in mental health interventions may experience improvements in substance-related concerns (Darnell & Schuler, 2015; Henggeler & Schoenwald, 2011), thereby eliminating the need for substance-related services. Any or all of these reasons may account for the larger prevalence rates for mental health treatment utilization than substance-related treatment utilization at different follow-up periods of the study.

4.5 Aim 4. Patterns of Post-Detention Treatment Utilization

Several important findings emerged pertaining to the pattern in which DAs were connected to treatment services following release from detention. Not surprisingly, the prevalence of treatment utilization increased as length of time from detention increased, since DAs had more opportunities to obtain treatment services. Somewhat surprisingly, however, was that the rate in which DAs were connected to their first treatment service was not consistent over time; about 25% of all treatment users (16.6% of sample) obtained their first treatment service within three months of release from detention and about 44% of treatment users (29.4% of sample) obtained their first treatment service within one year of release from detention. The remaining treatment users obtained their first treatment at increasingly larger distances from detention release, including DAs who utilized their first service approximately 13½ to 14 years following first stay in detention.

The fact that a sizable percentage of DAs obtained treatment services shortly after detention release suggests that providers within the Marion County juvenile detention center are putting forth good efforts to identify and connect DAs to treatment services in the community. This appears to be particularly true for the time period following implementation of the MAYSI-2, since the prevalence of treatment utilization within one year of detention release increased from 20.9% pre-implementation of the MAYSI-2 to 50.1% post-implementation of the MAYSI-2. As documented in other research, mental health screeners like the MAYSI-2 can promote improved awareness among staff members of adolescents' mental health needs, enhanced communication between staff and DAs, increased efforts by staff to obtain mental health services for DAs, and more efficient use of treatment resources (Aalsma et al., 2014; Williams & Grisso, 2011). It is likely that the implementation of the MAYSI-2 in 2006 prompted similar improvements in the functioning of the Marion County juvenile detention center, which resulted in marked improvements in post-detention treatment utilization among DAs.

While the MAYSI-2 may have improved service delivery, it is important to consider that about 70% of DAs who completed the MAYSI-2 screened positively and about 72.6% of DAs met criteria for a disorder, but only 29.0% of the sample obtained services within one year and only 36.7% obtained services within two years of release

from detention. Based on such findings, several important points can be made regarding the healthcare delivery system for DAs in this study. First, as documented in participants' medical records, providers within the community appear to have been generally successful with screening and identifying DAs with mental and/or substance-related disorders, since prevalence rates were quite consistent with other studies of DAs (Fazel et al., 2008; Shufelt & Cocozza, 2006). Additionally, the implementation of the MAYSI-2 in 2006 appears to have been quite effective, since nearly 97% of all adolescents admitted into the detention center post-implementation completed the screener and nearly 68% screened positively, a rate that is similar to other research (Aalsma et al., 2014; Vincent et al., 2008). In addition, the prevalence and amount of services post-detention significantly increased post-implementation of the MASYI-2 (although there were other factors that will be discussed in subsequent sections). Altogether, findings suggest that the juvenile justice facility and healthcare system involved in this study were generally able to identify detained youth with behavioral health needs. The proliferation of research and awareness-raising efforts that have taken place since the late 1990s to highlight the mental health and substance-related concerns of DAs (Pajer et al., 2007; Yazzie, 2011) likely served as a key factor in the satisfactory identification of DAs with needs in this study.

Although DAs were correctly identified as having mental health and substance-related needs, findings nevertheless indicated problems within the juvenile justice system and healthcare delivery system, in that the identification of DAs did not consistently result in connection to treatment and/or retention in treatment services. Specifically, many DAs with disorders failed to obtain treatment within a reasonable amount of time upon community reentry. Only 38.2% of adolescents with mental disorders, 26.9% of adolescents with substance-related disorders and 46.9% of comorbid adolescents utilized treatment within one year of detention release; rates increased to 49.5%, 37.0%, and 55.6% within two years. Such findings suggest gaps in the juvenile justice system for ensuring connection to care for DAs with behavioral health concerns.

In trying to account for the gaps in the delivery care system, it is possible that some participants who were diagnosed post-detention may not have presented with

serious mental health concerns during their first detention; hence, they were not referred for post-detention services. When focused on only DAs who were diagnosed prior to detention and likely presented with mental health concerns during their detention stays, post-detention treatment utilization among these DAs was about 65.6% within one year of detention release. Although this prevalence rate is certainly higher than overall rates, findings still indicate gaps within the juvenile justice system. Staff should have known that these DAs were in need of treatment, as diagnoses are listed in their records, but something happened (e.g., lack of referral, refusal to attend treatment) within the delivery system that interfered with these adolescents obtaining treatment. At best, study findings indicate that nearly one in three DAs with documented mental health and/or substance-related concerns were not connected to services within one year of reentry into the community, which is unfortunate since treatment services have the potential to alleviate mental health problems and reduce recidivism (Henggeler & Sheidow, 2012; Lipsey, 2009). Numerous researchers and advocates have critiqued the justice system for inefficient and/or inconsistent methods of referring and connecting DAs to post-detention treatment services (Braverman & Murray, 2011; Towberman, 1994). Although such critiques have prompted policy changes to improve service provision (Hoytt et al., 2001), such as the implementation of mental health screeners like the MAYSI-2, results from this study indicate continued limitations within the mental healthcare delivery system for serving the detained adolescent population.

4.6 Aim 1. Quantity of Post-Detention Treatment Services

As mentioned in the Introduction section, the few studies that have examined mental health treatment among DAs have primarily examined prevalence rates and/or effectiveness of mental health interventions for detained youth. Little is known about the actual characteristics of treatment services used by this population. In this regard, the study produced several new and notable findings worthy of mention. First, DAs participated in approximately 20 outpatient sessions over a 2-year period, which equaled an average of 1.31 sessions per month. Approximately 22.5% of these users dropped out of treatment after 1-3 sessions and 40.6% experienced at least one significant gap of 46-

120 days between sessions. Since no study (that I have found) has specifically examined quantity and/or gaps in services for detained adolescents, these outcomes are difficult to put into context, although the dropout rate appears to be lower than the 30%-60% dropout rate found among the general adolescent population (Kazdin & Mazurick, 1994; Oruche, et al., 2014).

As recommended on the Blueprints for Healthy Youth Development website (2015), a registry of evidence-based youth development programs designed to promote the health and well-being of children and adolescents, effective treatments for high-risk youth (i.e., detained adolescents) require at least 12 to as many as 30 intensive weekly treatment sessions involving both the adolescent and his/her family (Darnell & Schuler, 2015). When considering the results for total number of outpatient sessions, dropouts, and gaps between services, approximately 33.5% of all outpatient users utilized services within two years of detention release that satisfy the basic treatment recommendations established by Blueprints for Health Youth Development (2015). Further, it is likely that the one-third of youth who obtained the minimum number and frequency of services may not have participated in *evidence-based* treatment services, like multisystemic therapy or family functional therapy. Thus, it is likely that few DAs obtained treatment that qualifies as evidence-based (Darnell &Schuler, 2015; Lipsey, 2009); rather, the majority of treatment users probably terminated treatment early or obtained too few services to experience significant treatment benefits. Not surprisingly, high rates of recidivism and re-incarceration were found within the sample; such outcomes may be related to the low-quality and limited quantity of treatment services that DAs obtained.

Given that most DAs likely failed to obtain sufficient, evidence-based treatment, it is important to consider possible reasons and treatment barriers that may have prevented DAs from obtaining adequate services. Unfortunately, the majority of treatment dropouts and gaps between treatment services occurred for no clear reason; findings could not be explained by placements in detention/prison or inpatient treatment facilities. One of the most commonly cited explanations within the literature for low treatment utilization among DAs involves lack of insurance coverage, since many DAs experience temporary suspensions or lapses in insurance coverage that disrupt availability

and continuity of treatment (Aalsma, Blythe, Harezlak, & Rosenman, 2012a; Cuellar et al., 2005; Gupta et al., 2005). However, all DAs in the study were actively insured in Medicaid programs at the time of detention release and should have been able to obtain mental health and/or substance-related services in the community. It is possible that some participants may have lost insurance coverage at some point during the study, given the long time frame of the study, coupled with the low socioeconomic status of most DAs (Sedlak, 2009). Such loss of insurance may partially explain treatment terminations and/or gaps in care, but the absence of insurance data over time makes it nearly impossible to draw conclusions about the impact of insurance on treatment patterns for DAs in this study. More longitudinal research is needed to examine the relationship between insurance status and patterns of treatment services over time.

Besides insurance, other potential factors that may have impacted treatment utilization among DAs include lack of referrals to treatment services (as discussed earlier), poor knowledge about how or where to obtain services, transportation limitations, lack of financial means to obtain treatment, or residential move outside of provider network (Abram et al., 2008; Chapman et al., 2006; Kazdin & Mazurick, 1994; Luk et al., 2001). In addition, interviews with detained youth have shown that DAs often feel stigmatized for having a mental and/or substance-related disorder, hold negative attitudes about seeking treatment, and/or inaccurately believe their problems will improve without the aid of treatment (Abram et al., 2008), thereby preventing them from seeking post-detention treatment. DAs also report significant difficulties related to trying to reintegrate back into the community while simultaneously trying to remain actively involved in treatment (Moore et al, 2013). Many endorse interest in services, but tend to terminate treatment services for a variety of reasons, including distrust of treatment providers, feeling disrespected or unfairly judged by treatment providers (especially for relapses), being unable to find services that fit their busy schedules with school, work, and taking care of family members, feeling powerless in overly-controlled treatment programs (e.g., strict substance use rules, no contact with former friends), and lack of support system/family involvement in services (Moore et al., 2013). Unfortunately, evidence suggests that adolescents who drop out of treatment are much less likely to seek

help for mental health problems in the future and more likely to experience poor outcomes (Luk et al., 2001; Oruche et al., 2014); thus, it is imperative that efforts be made to encourage treatment-seeking among DAs, as well as continued engagement in treatment services.

In response to the challenges that DAs experience in obtaining treatment services, juvenile probation officers can help DAs address treatment barriers by serving as a source of information or "gateway providers" (Holloway et al., 2013; Stiffman et al., 2004) regarding treatment options and available resources; officers can also regularly communicate with treatment providers in the community to monitor DAs' progress and adjust treatment services and/or probation plans accordingly (Howell, 2003; Stiffman et al., 2004; Wasserman et al., 2008). To illustrate the importance of probation officers, the Idaho Department of Juvenile Corrections recently redesigned their healthcare delivery system for juvenile justice-involved youth by establishing stronger linkages and lines of communication between mental health providers already in the community, county probation officers, and members of the court (Riley, 2014). The new system yielded a new management and service planning structure, in which probation officers and judges took active parts in treatment planning and resource decisions for DAs. As a result, the Idaho Department of Juvenile Corrections was able to successfully work with a limited budget to implement state-wide substance use disorder treatment services for their juvenile justice population. The following quote by Riley (2014) emphasizes the importance of collaboration between different individuals involved in the juvenile justice system as key to a good service delivery system: "Partnership with the judicial branch and with other agencies managing substance use disorder appropriations for target population has been both advantageous and necessary to maximize the resources dedicated to service delivery. A partnership with county probation department provides the best opportunity to identify and authorize appropriate levels of substance use disorder services for juveniles who are on probation or otherwise served in the county justice system" (pp. 39).

4.7 Aim 2. Group Differences: Demographic Groups

Upon comparing differences in treatment utilization across groups of DAs, study findings clearly showed that demographic factors play a substantial role in post-detention treatment utilization among DAs. Whereas prior research has found higher rates of treatment referrals, treatment utilization, and number of treatment services among female DAs than male DAs (Hussey et al., 2008; Kataoka et al., 2001; Lopez-Williams et al., 2006), current findings failed to substantiate this pattern of service utilization. Instead, prevalence rates were significantly higher among male DAs compared to female DAs with regards to treatment services prior to detention, during detention, and after detention. Male DAs obtained a larger number of post-detention substance-related services and either/both treatment services within two years of detention release and were connected to community-based treatment within a shorter number of days than their female counterparts. Male gender was also associated with an increased likelihood of post-detention utilization of any treatment services, mental health services, substance-related services, either/both services, and outpatient services. Although the majority of findings indicated higher treatment utilization among males than females, a few exceptions were found; male gender was associated with decreased risk of non-outpatient treatment among cohort two DAs. Male DAs also tended to terminate outpatient services earlier than females, so that male gender was associated with increased risk of terminating outpatient treatment, mental health outpatient treatment, and substance-related outpatient treatment. Further, no differences were found between males and females on total number of services, number of outpatient sessions per month, length of inpatient stays, time between treatment services, dropout rates, and gaps in outpatient sessions.

Altogether, findings are unexpected and inconsistent with other studies that typically show higher rates of treatment services among females than males in the juvenile justice system (Kataoka et al., 2001; Teplin et al., 2005; Veysey, 2003). It is possible that results reflect new, accurate findings regarding gender differences in treatment services over an extended period of time, since prior studies have generally focused on treatment utilization prior to detention and/or within a few years of detention

release (Dalton et al., 2009; Domalanta et al., 2003; Hussey et al., 2008; Shelton, 2005). Alternatively, results may stem from timing of diagnosis; males were significantly more likely to have a diagnosis upon detention entry, whereas females were more likely to be diagnosed post-detention. Thus, providers within the detention center may have been more aware of male DAs in need of treatment services and therefore more likely to provide referrals and/or planning for transition to community services (Aalsma et al., 2014; Trupin et al., 2004; Williams et al., 2008). However, this explanation does not account for the fact that females in the sample endorsed significantly higher mental health needs on the MAYSI-2 and had higher rates of mental disorders (regardless of timing in relation to detention), so they should have theoretically obtained referrals and connections to care in the community (Hoeve et al., 2013; Kates et al., 2014).

Although difficult to determine the exact reason for the unanticipated gender-related findings, the sampling frame used for the study may explain current results. Specifically, approximately 9800 potential participants were eliminated from the sample for lacking adequate medical records and insurance data (e.g., private insurance or no insurance). The eliminated sample consisted of 19% female and 81% male, compared to the study sample of 37% female and 63% male. Thus, a large number of males were excluded from the study; these males lacked Medicaid insurance and were probably unlikely to utilize treatment (Aalsma et al, 2012b). The current sample may therefore include a disproportionate number of males who are more likely to use treatment than normal male DAs, resulting in biased and unexpected results that overestimate treatment utilization among male DAs. Given that this is one of only studies to find higher service utilization among male DAs, additional studies are certainly needed to replicate and confirm findings. Finally, it should be noted that female DAs tended to participate in services for longer periods of time and were less likely to terminate from outpatient services than male DAs, which suggest that the number of females involved in treatment may have been lower than males, but these females tended to remain in treatment services and were probably more likely to benefit from treatment services (Kazdin & Mazurick, 1994; Luk et al., 2001).

Consistent with prior research (Dalton et al., 2009; Novins et al., 1999; Samuel, 2015), White DAs in this study obtained significantly more treatment services than their Black counterparts. Being White was significantly associated with receiving more pre-detention services, as well as post-detention services. Prevalence rates were significantly higher for White DAs compared to Black DAs for all three treatment types, both treatment settings, and most non-outpatient user intensity levels (except extreme users). On average, White DAs obtained significantly more substance-related treatment services and were less likely to drop out of outpatient treatment. Survival analyses for the entire study time frame revealed that Black youth tended to be connected to services in a shorter number of days than White youth, but also terminated outpatient treatment earlier than White youth. This fits well with other research indicating that minority youth are more likely to drop out of treatment and terminate services prior to treatment completion (Johnson et al., 2004; Kazdin & Mazurick, 1994).

As addition racial differences, regression analyses revealed that Black race was significantly associated with decreased likelihood of mental health treatment services and non-outpatient treatment services within two years post-detention, as well as a decreased risk of non-outpatient treatment services at any time. Interestingly, race was not a significant variable for any other Cox regression analyses, except for decreased risk among cohort two regarding utilization of any treatment services, mental health services, either/both treatment services, and outpatient services. Despite clear differences in treatment utilization across racial groups, Black DAs and White DAs experienced similar mean number of services, average time between treatment services, number of outpatient services per month, gaps between outpatient sessions, outpatient intensity levels, and length of inpatient stay.

Overall, study findings fit well with previous research and my meta-analysis regarding the greater utilization of treatment services among White DAs than minority DAs (Dalton et al., 2009; Rawal et al., 2004; Shelton, 2005). Since White DAs endorsed higher needs on the MAYSI-2, averaged more unique mental diagnoses, and boasted higher rates of mental disorders and comorbidity, it is possible that the behavioral healthcare delivery system is simply responding to more significant concerns among

White DAs (Shufelt & Cocozza, 2006; Teplin et al., 2012), thereby resulting in higher treatment utilization among White DAs. This may account for the higher prevalence of non-outpatient services among White DAs and decreased likelihood of Black DAs obtaining non-outpatient services post-detention, since DAs with more serious mental health needs (i.e., White DAs) would require more intensive services like long-term inpatient treatment. However, Black DAs had higher rates of substance-related disorders and averaged more substance-related disorders than White DAs. If treatment services were truly being equally distributed based on need and regardless of race, results would be expected to follow a pattern in which White DAs obtained more mental health and comorbid treatment services, whereas Black DAs obtained more substance-related treatment services. Clearly, results failed to follow this pattern and suggest a possible bias against Black adolescents.

Current findings point to treatment disparities favoring White adolescents that are likely a combination of various factors, such as differences in treatment availability, treatment-seeking behaviors, and attitudes about treatment services among White DAs versus Black DAs (Brannan & Heflinger, 2005). Evidence suggests that minority adolescents are often less aware and less willing to endorse mental health problems, less likely to trust mental health providers, less likely to seek treatment, more likely to drop out of treatment services, and/or less likely to believe in the effectiveness of treatment interventions (Abram et al., 2008; Cauffman, 2004; Johnson et al., 2004; Lo et al., 2003). Thus, the Black DAs in the current study may have been experiencing similar mental health concerns as the White DAs, but were less likely to obtain treatment for any (or all) of the reasons just mentioned. In addition to racial differences in adolescent behavior, racial biases among staff and providers can result in differential treatment regarding who is identified, referred, and/or connected to services (Herz, 2001; Towberman, 1994), so that minority DAs are less likely than White DAs to be referred to services, placed in mental health treatment, or assisted with managing treatment barriers (Dalton et al., 2009; Hoeve et al., 2013). Moreover, another outcome of racial biases is that Black adolescents are more likely to be re-arrested and/or re-incarcerated than White adolescents (Office of

Juvenile Justice and Delinquency Prevention, 2013; Rozie-Battle, 2002), which limits the opportunities for Black DAs to obtain treatment in the community (Herz, 2001).

Just as treatment utilization differed significantly across gender groups and racial groups, findings for treatment utilization across the three age cohorts were quite disparate. The majority of post-detention treatment utilization followed a pattern in which treatment services were most prevalent among younger DA (11-13 years), followed by mid-aged DAs (14-15 years), and lastly older DAs (16-18 years). Prevalence rates followed this pattern for post-detention treatment services, mental health services, either/both services, and outpatient services within two years of release from detention. On average, younger DAs obtained the highest number of treatment services; mid-age DAs obtained the middle number of services and older DAs obtained the smallest number of such services. Interestingly, dropout rates were significantly higher among older DAs than younger DAs, whereas gaps between outpatient services were more common among younger DAs than older DAs. This relationship makes sense when considering that younger DAs were more likely to be involved in outpatient treatment and remained in outpatient treatment for a significantly longer period of time than mid-age DAs and older DAs, so they had more opportunities to experience gaps between outpatient sessions. Not surprisingly, older age was linked to an increased risk of termination from all three types of outpatient treatment.

Findings highlight the unique relationship between age and treatment utilization, with decreasing likelihood of treatment services as age upon entry into detention increases. Although this pattern was fairly clear across findings, it should be noted that results were non-significant across the three age cohorts for time between treatment services or average length of inpatient stays. Mid-age DAs were actually connected to post-detention services in a shorter number of days than younger DAs and older DAs. In addition, age was associated with odds ratios in the opposite direction for the logistic regression analyses, in that older age was associated with significantly *decreased* likelihood of post-detention treatment services, mental health services, and outpatient services, but *increased* likelihood of substance-related services and either/both treatment

services within two years post-detention. However, survival analysis for the entire study time frame showed that older age was linked to decreased risk of treatment services.

Altogether, the pattern of results showing decreasing prevalence and quantity of treatment services as age increases is compatible with other research studies that have examined the role of age in treatment utilization among detained youth (Aalsma et al., 2012b; Lopez-Williams et al., 2006). Several factors may account for the negative relationship between age and treatment utilization. First, the longitudinal nature of this study may be partially driving results. DAs who were younger at first detention may have remained in the dataset longer (i.e., avoided attrition related to death, moving, going into adult prison) than older DAs, so they had more opportunities to obtain treatment and data about treatment utilization may be more complete for the younger cohort than the older cohort. Second, as detailed in the beginning of the Discussion section, youth who are younger at first detention are likely to be more serious criminal offenders with significant mental health symptomology (Aalsma et al., 2012a; Kates et al., 2014). Thus, higher treatment utilization by younger DAs may stem from higher needs among this cohort than other age cohorts. Third, research has suggested possible bias among juvenile justice staff and providers, who may be more likely to identify and/or refer younger DAs to community-based services due to beliefs that younger adolescents have more time or motivation than older adolescents to try to reintegrate back into the community (Stiffman et al., 2004). Unfortunately, as shown by current findings, provider bias against older adolescents can promote a two-tiered approach within the juvenile justice system, in which younger offenders are placed on a treatment-focused, rehabilitation track whereas older offenders are placed on a punishment-focused, incarceration track (Herz, 2001; Ricks & Louden, 2014).

4.8 Aim 2. Group Differences: Mental Health Groups

Besides demographic variables, mental health variables also significantly impact post-detention treatment utilization among DAs. With regards to differences between Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2) groups, comparing DAs who completed the screener versus did not complete the screener is analogous to

comparing cohort one to cohort two, which was already addressed in an earlier section. For DAs who responded to the MAYSI-2, findings showed significantly higher prevalence rates of treatment utilization among DAs with positive screens versus DAs with non-positive screens for all three treatment types, both treatment settings, and all non-outpatient user intensity levels. In addition, the positive screen group obtained significantly more total treatment services, outpatient sessions, and remained involved in treatment for significantly more days than DAs with non-positive screens. It should be noted that DAs with positive screens and DAs with non-positive screen utilized services rather quickly upon release from detention. Specifically, DAs with positive screens utilized treatment within 93 days and DAs with non-positive screens utilized treatment within 111 days of detention release; such length of time was markedly shorter than any other DA group and significantly shorter than the approximately 992 days it took for DAs from cohort one who did not take the MAYSI-2 to utilize services. Findings provide additional support for the existence of a timing effect, since the two MAYSI-2 groups that utilized services within a short timespan were in cohort two, during which efforts were made to increase connections to community-based care (Aalsma et al., 2012b; Aalsma et al., 2012b).

Given the results for treatment utilization across MAYSI-2 groups, it seems reasonable to presume that DAs who screened positively on the mental health screener utilized more post-detention treatment services than other youths for several reasons. First, DAs who endorsed behavioral health concerns were probably more aware of their treatment needs and more likely to be interested in services to address these needs (Braverman & Murray, 2011; Lo et al., 2003). Second, due to the implementation of the mental health screening and referral program at the Marion County juvenile detention center, staff were able to review MAYSI-2 results, identify youth with positive screens, and plan appropriate services for these identified adolescents (Aalsma et al., 2012a; Wasserman et al., 2003). The combination of both these factors likely explains the higher prevalence and quantity of treatment services utilized among DAs with positive screens than non-positive, as well as shorter time frames for obtaining treatment upon reentry into the community.

Although screening positively on the MAYSI-2 was associated with higher prevalence of treatment utilization, results revealed an unanticipated pattern in which DAs with positive screens obtained more substance-related treatment services and DAs with non-positive screens obtained more mental health treatment services. For example, the positive screen group obtained greater number of substance-related outpatient sessions per month and longer substance-related inpatient stays, whereas the non-positive screen group obtained a greater number of mental health treatment services, mental health outpatient sessions per month, and longer mental health inpatient stays. DAs who screened positively experienced fewer mean days between substance-related outpatient sessions, whereas DAs with non-positive screens experienced fewer days between mental health outpatient sessions.

The pattern of greater utilization of substance-related services among the positive screen group and greater utilization of mental health services among the non-positive screen group is a new finding that has not been discussed within the literature (that I have found). Since there are multiple ways to screen positively on the MAYSI-2 via elevations on different symptom domains, it is not possible to determine whether results reflect an appropriate match between mental health needs, substance-related needs, and treatment utilization, i.e., DAs with positive screens were more likely to have substance use disorders and therefore more likely to obtain substance-related services. Instead, the best conclusion that can be currently offered is that the implementation of the MAYSI-2 prompted increased treatment utilization among all youth, with generally larger utilization among DAs with positive screens than non-positive screens. Such increased utilization represents improvements within the juvenile justice system and healthcare delivery system (Hendrix, Doebbeling, & Aalsma, 2012; Aalsma et al., 2014), although the screener does not appear to be being utilized as efficiently as possible for matching different types of needs (mental health versus substance-related) to corresponding types of services.

Treatment utilization prior to first detention stay emerged as a significant variable related to post-detention treatment services upon reentry into the community. Pre-detention treatment utilization was not only strongly correlated with post-detention

treatment utilization, but the prevalence rates for post-detention treatment utilization were about 3 times larger among DAs with a history of prior treatment than other DAs. For example, rates were 72.1% for post-detention treatment and 18.0% for post-detention non-outpatient treatment among DAs who had pre-detention treatment versus 25.8% for post-detention treatment and 4.8% for non-outpatient treatment among DAs without pre-detention treatment. Further, DAs with prior treatment obtained significantly more treatment services, mental health services, either/both services, outpatient services, and outpatient sessions per month within two years post-detention than their counterparts.

Research examining patterns of treatment-seeking behaviors among the detained adolescent population is limited (Samuel, 2015; Wasserman et al., 2003), so current findings are important in showing that DAs engage in similar treatment utilization behaviors as the general adolescent population. Specifically, studies of treatment-seeking behaviors and behavioral health services utilization among adolescents have found strong evidence for continuity of care and associations between past and future treatment (Cauce & Srebnik, 2003). Evidence suggests that adolescents are more likely to seek mental health treatment or remain in treatment when they have a history of treatment, particularly if prior treatment services were helpful, easy to access, and/or affordable (Abram et al., 2008; Kates et al., 2014). The participants in the current sample showed a similar pattern; DAs with pre-detention treatment obtained greater number of services, had higher prevalence rates and lower dropout rates, remained involved in outpatient treatment longer, and utilized services within a mean of 46 days post-detention, compared to 1047 days for DAs without pre-detention treatment.

Several factors are likely contributing to the strong association between pre-detention treatment and post-detention treatment. First, youth with more serious mental health concerns are more likely to obtain treatment at an early age (Kessler et al., 2005). Thus, DAs with a history of treatment services are likely to be younger at detention entry, with prominent mental health and/or substance-related problems that require continued treatment following release from detention post-detention. Second, adolescents' history of treatment services is listed on their records, so staff within the juvenile justice system should be aware of DAs with prior treatment and make appropriate arrangements for

continuity of care (Hendrix et al., 2012; Wasserman et al., 2003). Third, DAs with pre-detention treatment may be more willing to utilize treatment post-detention, due to having a strong therapeutic alliance with a provider, wanting to continue seeing a provider, possessing buy-in or belief in treatment services, experiencing good outcomes in past treatment, and/or being comfortable and knowledgeable of the therapeutic treatment process (Orunche et al., 20014; Samuel, 2015). It should be noted that approximately 87.8% of the DAs with prior treatment obtained these treatment services within the two years prior to being admitted into detention, so these youth likely remember their providers, are familiar with treatment, know where to seek treatment, etc., which eliminates many treatment barriers that may prevent DAs from seeking treatment after release from detention. Finally, the ease of service planning may account for the link between pre- and post-detention treatment; it may be easier for staff within the juvenile justice system to coordinate care with DAs' current (or past providers) in the community and make arrangements for these youth to continue services upon release from detention versus independently searching and finding providers for youth with no history of prior treatment (Lyons et al., 2003; Riley, 2014).

4.9 Aim 2. Group Differences: Criminal History Groups

Findings revealed that DAs with more serious criminal history background tended to utilize more treatment services than other DAs. For example, being a violent offender was significantly correlated with pre-detention treatment, during-detention treatment, and post-detention treatment utilization. Prevalence rates for violent offenders were significantly higher than non-violent offenders for any post-detention treatment services, mental health treatment services, and outpatient treatment services. Violent offenders were also connected to services in the community significantly sooner and remained involved in outpatient services longer than non-violent offenders. Moreover, being a violent offender was associated with an increased risk of post-detention treatment utilization, as well as decreased risk of terminating from general outpatient treatment.

More serious offenders, such as violent offenders, tend to engage in more problematic behaviors that ensure heightened attention within the juvenile justice system

and the community (Barrett et al., 2006; Bath et al., 2013). As a result, providers are likely to have increased awareness of such DAs and may make increased efforts to generate referrals and/or provide services to ensure rehabilitation for these troubled youth (Hoeve et al., 2013; Kataoka et al., 2001). In addition, mental health problems and criminal history tend to be highly related (Colins et al., 2013; Maschi et al., 2008). Not surprisingly, being a violent offender was correlated with having a conduct disorder, non-conduct mental disorder, and substance-related disorder, so being a violent offender may represent a proxy variable of mental health needs and therefore account for the higher prevalence of treatment services for these youth.

Much like violent offenders, adolescents who were rearrested within two years of detention experienced higher treatment utilization than other adolescents. Recidivism was not only significantly correlated with pre-detention treatment utilization, but also associated with post-detention treatment utilization for the three treatment types and two treatment settings. Prevalence rates among recidivist DAs were about 2 times greater than rates for non-recidivist DAs. Moreover, recidivists averaged significantly more general treatment services, mental health treatment services, and outpatient sessions; there were significantly more recidivist DAs within all outpatient user intensity levels and non-outpatient user intensity levels (except extreme users). With regards to long-term outcomes, survival analyses showed that recidivists obtained services within a significantly shorter number of days and remained involved in outpatient services for a longer number of days than non-recidivist DAs. This likely explains why dropout rates were smaller for recidivists than non-recidivists, since they obtained larger number of services and stayed involved in services longer than non-recidivists.

Comparisons between the incarceration groups mirrored the results for recidivism groups, with higher treatment services among adolescents who were re-detained and/or incarcerated in prison. Being re-detained/incarcerated was significantly associated with treatment utilization prior to detention, during detention, and after detention. Prevalence rates were significantly higher for re-detained/incarcerated DAs for all three treatment types and both treatment settings, although rates were not as divergent as recidivism groups. In contrast to other findings, the survival curves for incarceration groups failed

to significantly differ, meaning that DAs for both groups obtained services within similar periods of time; however, re-detained/incarcerated DAs remained involved in outpatient treatment significantly longer than other DAs. Analogous to findings for recidivism, youth who were re-detained/incarcerated were less likely to drop out of outpatient treatment, but more likely to be able to explain dropouts via placements in detention/prison.

Taken together, results for recidivism and re-detained/incarcerated highlight several key findings. Because the specific date of recidivism was not available for this study, this variable was not examined as a potential predictor of treatment utilization; dates for detention/prison were available and included in the survival analyses. Being re-detained/incarcerated prior to treatment increased the likelihood of any post-detention treatment services, mental health treatment services, substance-related treatment services, either/both treatment services, and outpatient services. Such findings correspond to prior work (Kataoka et al., 2001; Kates et al., 2014; Lopez-Williams, et al., 2006) and seem reasonable since increased involvement in the juvenile justice system equates to more contacts with the system to be correctly identified as having behavioral health concerns, referred for community services, and/or connected to appropriate treatment programs. Additionally, providers in the system and in the community may be more motivated to help DAs who are stuck in the revolving door of the juvenile justice via recidivism and/or re-detentions by getting them engaged in treatment services (Becan et al., 2014).

A second key finding is that approximately 82.8% of recidivist DAs obtained treatment prior to re-arrest and 66.1% of incarcerated DAs obtained treatment prior to being placed in detention/prison. Given that the primary goals for many mental health interventions for detained youth involves reduced delinquency, the treatment services DAs received do not appear to have been particularly effective in promoting rehabilitation and preventing recidivism. Such results are not entirely surprising since the majority of DAs obtained services that fell below standards for evidence-based treatment (as discussed earlier). At the same time, however, it is possible that treatment services delayed the onset and/or intensity of recidivism, which is considered a positive treatment outcome (Cuellar et al., 2006; Schwalbe et al., 2012). While possible, it is more likely

that the strong association between mental health treatment and criminal activity stems from the severity of DAs' behavioral health needs (Aalsma et al., 20015; Kates et al., 2014). DAs with serious mental and/or substance-related issues are more likely to obtain treatment, and these DAs may also be more likely to experience a recidivism event or repeated detention upon reentry into the community (Aalsma et al., 2015; Barrett et al., 2006). Thus, underlying mental health concerns may represent a third variable that is driving current findings. Additional data pertaining to recidivism events (e.g., date, severity, charge count) and treatment services (e.g., treatment model, quality of services, treatment) are needed to adequately examine these issues and determine the effectiveness of current treatment services.

4.10 Aim 3. Predictors of Treatment Utilization

Besides violent offenses, recidivism, and incarceration, several other criminal history variables emerged as significant predictors of treatment utilization among DAs. Most notably, higher number of arrests prior to detention was associated with increased likelihood of post-detention treatment services, mental health services, substance related services, either/both services, outpatient services, and non-outpatient services at 2-year follow-up, as well as any time during the study time frame. Higher number of prior arrests was also linked to significantly increased risk of dropping out from any outpatient treatment, including all three types of treatment services. Additionally, higher charge severity (1 to 5) yielded an increased likelihood of any post-detention treatment services, mental health treatment services, and outpatient treatment services; more serious charge severity also increased the risk of terminating outpatient treatment. Overall, results correspond well to prior studies linking increased criminal history to greater treatment utilization (Barrett et al., 2006; Johnson et al., 2004; Ryan et al., 2013). As outlined in previous paragraphs, DAs with more significant criminal backgrounds (i.e. larger number of prior arrests and/or more serious charges) may be we more likely to have behavioral health concerns, particularly impaired emotional regulation, impulsivity, poor impulse control, and conduct problems (Kates et al., 2014), and may therefore be more likely to obtain treatment services upon release into the community.

Interestingly, comparing cohort one to cohort two yielded some unexpected findings related to the relationship between criminal history and treatment utilization. First, the number of prior arrests failed to predict treatment utilization for cohort two, with the exception of non-outpatient treatment and outpatient dropout. Second, charge severity was significant for cohort two, but failed to predict post-detention treatment services for cohort one. Third, length of stay emerged as a significant variable associated with decreased risk of termination from either/both outpatient treatment for cohort one, but increased risk of termination from the same treatment for cohort two. Longer length of stay also produced a decreased likelihood of post-detention treatment for cohort one compared to increased likelihood of post-detention outpatient treatment for cohort two. Clearly, the time effect is impacting results, so that findings are different between cohorts. The fact that most criminal history variables were significant for the total sample and cohort one, but became non-significant (or less significant) for cohort two, suggests a trend in the right direction because criminal history variables are making less of an impact on whether DAs obtain services. At the same time, behavioral health needs and diagnoses are becoming more important factors in treatment utilization among DAs.

4.11 Time Effect

During data analysis, evidence emerged suggesting a possible time effect that occurred during the study time frame. Research revealed that several key events occurred between 2005 and 2006 that impacted the functioning of the Marion County juvenile detention center (i.e., site of this study). Specifically, Marilyn Moore was appointed to serve as head judge for the Marion County Superior Court, Juvenile Division in March 2005 (Maguire, 2012). In contrast to Judge James Payne, who previously served as the head judge for 20 years, Judge Moore pushed for more emphasis on the behavioral health needs and employment possibilities for juvenile justice-involved youth (Bercovitz, 2009). Thus, under her leadership, the Marion County Superior Court invited the Anne E. Casey Foundation to implement the Juvenile Detention Alternatives Initiative (JDAI) in 2006 within Marion County (Bercovitz, 2009). The JDAI, which is a nationwide program designed to reduce juvenile detention and increase the use of alternatives non-detention

programs (Bercovitz, 2009), resulted in a reduction in the number of adolescents detained in Marion County's juvenile detention center (i.e., census reduction from 144 beds to 112 beds) and the establishment of a mental health screening and referral program (Aalsma et al., 2012a; Aalsma et al., 2012b). The program required that all adolescents complete the MAYSI-2 upon detention entry and established procedures to guide staff in understanding screener results and taking appropriate actions (e.g., referrals, request comprehensive psychological evaluation, create transition plan) (Aalsma et al., 2012b). Given that the events discussed likely impacted study outcomes and introduced a serious time effect (Roe & Korn, 1993), I conducted sub-analyses comparing findings for DAs detained pre-implementation of the screening and referral program (i.e., cohort one) to findings for DAs detained post-implementation (i.e., cohort two).

Since an examination of this time effect was not initially proposed as a primary study aim, discussion of findings related to the time effect will be brief. It appears the events that occurred during 2005 and 2006 greatly impacted treatment utilization outcomes (Aalsma et al., 2012b), as evidenced by markedly divergent results between cohorts. Prevalence rates were roughly 2-3 times larger among cohort two DAs compared to cohort one DAs, with significantly more cohort two DAs obtaining mental health services, substance-related services, either/both services, outpatient services, non-outpatient services, all outpatient user intensity levels, and most non-outpatient user intensity levels. Moreover, predictors of treatment utilization differed between cohorts. Many criminal history variables (e.g., number of prior arrests, violent offender) that were significant for cohort one became non-significant (or less significant) for cohort two, while many mental health variables (e.g., conduct disorder, substance-related disorder) remained significant for cohort one.

Altogether, the significant differences that emerged between cohorts support the conclusion that a time effect was present during the follow-up period of the study, with unique events that prompted greater utilization of treatment services among adolescents detained in more recent years. Findings suggest a positive trend over time, in which the prevalence of treatment utilization is growing and mental health needs are becoming increasingly important factors (rather than criminal history) in predicting post-detention

treatment utilization (Lyons et al., 2001; Vincent et al., 2008). This trend is not perfect, however, given that male gender, Black race, and older age were associated with decreased likelihood of any treatment services, mental health treatment services, either/both treatment services, and outpatient services among DAs in cohort two; such disparities significantly limit the opportunities for certain groups of DAs to obtain treatment services (Aarons et al., 2004; Herz, 2001; Hoytt et al., 2001).

4.12 Study Limitations

Several limitations associated with this study should be acknowledged. First, the sample for the study consisted of adolescents from the detention center in Marion County, Indiana. Results may not generalize to the overall detained adolescent population, since adolescents from long-term prison facilities and facilities outside Marion County were not part of the sample. However, the sample size was large, a sizable minority of adolescents (about 10%-20%) in the sample experienced at least one stay in prison, and the demographic makeup of sample is consistent with census data pertaining to the overall detained adolescent population (Sedlak & Bruce, 2010); thus, issues related to generalizability are minimal.

Second, although the Recmatch software program was able to link approximately 83% of the files from the Marion County Juvenile Justice system (QUEST) with Regenstrief Medical Record System (RMRS), there is no guarantee that all adolescents' records were accurately matched to the correct individual. Multiple steps were taken to enhance the matching process, including the use of numerous participant identifiers (e.g., SSN, name, DOB) and a secondary software program (i.e., RecFarm) that specifically analyzed pairs of files to identify true matches and eliminate duplicate (or non-matching) files. However, it is likely that some participants' files were either incorrectly matched and/or discarded, resulting in missing and/or biased data.

One way to address this issue involved eliminating participants with files containing significant amounts of missing data (i.e., either all mental health information or all criminal history information). Unfortunately, this created a limitation involving the sampling frame, particularly the exclusion of a significant number of adolescents. Prior

to analysis, approximately 2,126 adolescents were eliminated from the sample due to either an inability to link records from both databases or blank records from one (or both) of the databases. Further, approximately 7,734 adolescents with private insurance or no insurance were dropped from the sample due to a lack of treatment utilization data, and approximately 749 adolescents were lost to attrition (e.g., death, lack follow-up) at 2-year follow-up. The adolescents included in the study may be systematically different than the adolescents who were excluded from the study, but it is not possible to determine the nature of such bias. Given the low socioeconomic status within the DA population (Sedlak, 2009) and evidence that lack of insurance can serve as a treatment barrier preventing adolescents from obtaining treatment (Abrams, et al., 2008), it is possible that current study findings may have been different with the inclusion of non-insured DAs. Future research that assesses the relationship between insurance status and treatment utilization among the DA population is needed to replicate current study findings.

Finally, the large number of statistical tests conducted for this study introduces potential problems with alpha inflation and heightened risk of Type 1 errors (Altman, 2000). As mentioned in the Introduction section, this study represents one of the first and only longitudinal research studies to thoroughly assess treatment utilization patterns among DAs. Thus, the study was exploratory in nature, guided by four primary study aims with multiple analyses to fully examine the data and better understand the topic area. To avoid missing potentially important findings, an alpha correction was not used. Rather, the statistical significance level for most analyses was set at $p \leq .01$, with the expectation that Type 1 errors may occur for this exploratory study. I recognize this as a potential limitation, with the recommendation that additional research aim to replicate and confirm findings.

4.13 Implications and Recommendations for Future Research

The study revealed unique patterns of service utilization over time, marked by low prevalence rates (in comparison to disorder rates), early termination of treatment services, disparities across certain groups of DAs, and differences between utilization of mental health services versus substance-related services. As one of the first and only

longitudinal studies to examine service utilization among a large sample of detained adolescents, study findings serve as a crucial foundation for future research. In light of such findings, I present the following recommendations to researchers and public policy makers within the mental healthcare field and the juvenile justice system.

1. Juvenile justice facilities are not required to maintain accreditation with National Commission on Correctional Health Care guidelines and therefore tend to provide limited, low-quality treatment services (Braverman & Murray, 2011). Legislation is needed that requires all facilities to maintain national standards of behavioral healthcare. Furthermore, an independent group of evaluators should regularly monitor and evaluate services within correctional facilities, to ensure facilities are providing quality treatment. Ideally, such efforts should improve the quantity, as well as quality, of mental health and substance-related services within facilities (Mulvey et al., 2007).
2. Epidemiology research has largely focused on the prevalence of mental health and substance-related concerns among DAs (Fazel et al., 2008; Shufelt & Cocozza, 2006 Teplin et al., 2002). While such research has greatly enhanced understanding of common symptoms and diagnoses among DAs, researchers need to take the next step in determining how to best address these problems (Johnson et al., 2004). Juvenile justice facilities are encouraged to enact programs for consistent identification of mental health needs for all detained youth (Aalsma et al., 2014; Desai et al., 2006). Specifically, facilities should institute formal mental health screenings during intake, if not doing so already. Results from these screenings should be used to identify treatment needs and prompt appropriate referrals and treatment planning for mental health and substance-related services in the community (Hendrix et al., 2012; Wasserman et al., 2003).
3. Professionals within the academic community and juvenile justice field need to implement policies and procedures to improve the behavioral healthcare delivery system for DAs to ensure that detained youth obtain treatment referrals, connections to care, resources to manage treatment barriers, support with remaining in treatment (rather than terminating early), as well as appropriate

evidence-based services. Given that many DAs tend to become stuck in the revolving door of the juvenile justice system, with multiple stays in correctional facilities, an ongoing monitoring process is crucial for helping DAs maintain continuity of care, address treatment obstacles, and achieve positive treatment outcomes (Bullis et al., 2004; Wasserman et al., 2003).

4. Different parties involved in the juvenile justice system, such as probation officers, judges, detention center staff, police officers, and community providers, should take part in service planning for DAs with mental health needs (Holloway et al., 2013; Stiffman et al., 2004). A system based upon regular communication and coordination of crucial information and resources related to treatment services, such as the one implemented by the Idaho Department of Juvenile Corrections, is recommended (Riley, 2014).
5. Few evidence-based mental health interventions and substance-related interventions exist for treating the detained youth population (Desai et al., 2006; Hoeve et al., 2013). Researchers are advised to advance the development, implementation, and dissemination of evidenced-based treatments that not only address the mental health concerns of DAs, but also produce reductions in recidivism (Braverman & Murray, 2011; Schwalbe et al., 2012). Such interventions should be affordable, convenient, and widely-available, given that the DA population tends to have low socioeconomic status and poor access to treatment services (Rogers et al., 2009; Sedlak & Bruce, 2010).
6. As part of an effective healthcare delivery system for DAs, all referrals, treatment planning, and actual treatment services must be provided equally across groups (Dalton et al., 2009; Herz, 2001). Public policy makers are advised to implement mechanisms that ensure all DAs have an equal opportunity to utilize high-quality mental healthcare services, regardless of demographic status, insurance status, mental health status, or criminal history status. The program outlined by Lyons and colleagues (2003) provides a good example of intensive efforts to connect DAs to appropriate mental health services. For this program, a designated mental health liaison worked with staff and providers within the juvenile justice system

and mental healthcare system to coordinate care for DAs with behavioral health concerns. The program was incredibly successful, boasting a post-detention service utilization rate of 75%. It is recommended that the juvenile justice system adopt similar programs nationally, as a first step toward addressing and increasing mental health and substance-related treatment utilization among the detained adolescent population.

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TABLES

Table 3.1 Sample Demographics

		Gender		Race/Ethnicity			Age Cohorts		
	Total Sample	Females	Males	White	Black	Other	Younger	Mid-Age	Older
Variables	N (%) *N* = 9664	N (%) *n* = 3602	N (%) *n* = 6062	N (%) *n* = 3367	N (%) *n* = 5667	N (%) *n* = 630	N (%) *n* = 2406	N (%) *n* = 3924	N (%) *n* = 3334
Male	6062 (62.7%)	--	--	2010 (59.7%)	3621 (63.9%)	431 (68.4%)	1626 (67.6%)	2422 (61.7%)	2012 (60.3%)
Female	3602 (37.3%)	--	--	1357 (40.3%)	2046 (36.1%)	199 (31.6%)	780 (32.4%)	1501 (37.3%)	1321 (39.7%)
Black	5667 (58.6%)	2046 (56.8%)	3621 (59.7%)	--	--	--	1466 (6.1%)	2311 (58.9%)	1890 (56.7%)
White	3367 (34.8%)	1357 (37.7%)	2010 (33.2%)	--	--	--	782 (32.5%)	1332 (33.9%)	1253 (37.6%)
Other	630 (6.5%)	431 (12.0%)	199 (3.3%)	--	--	--	158 (6.6%)	281 (7.2%)	191 (5.7%)

Note. N = Number; % = Percentage. Other = Non-White Hispanic, American Indian/ Alaskan, and Asian/Pacific Islander.

Table 3.2 Correlation Matrix: Demographic and Criminal History Variables

Variables (N = 9664)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Male (y/n)	*r*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2. White (y/n)	*r*	.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3. White Males (y/n)	*r*	.395	.694	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. White Females (y/n)	*r*	-.524	.545	-.207	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Black Males (y/n)	*r*	.597	-.630	-.397	-.313	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6. Black Females (y/n)	*r*	-.672	-.417	-.266	-.209	-.401	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7. Age at Detention Entry	*r*	-063	.045	-.009	.072	-.047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.385	.000	.000	.324	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--
8. Age at First Contact	*r*	-.090	.068	-.014	.105	-.077	.012	.758	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.190	.000	.000	.266	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9. Pre-Detention Arrest (y/n)	*r*	.042	-.015	.012	-.024	.037	-.016	.001	-.052	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.159	.240	.017	.000	121	.938	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10. Number of Prior Arrests	*r*	.161	-.096	.001	-.130	.148	-.076	.103	-.076	.229	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.936	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--
11. Number of Charges	*r*	.014	.004	.015	-.013	-.002	-.002	-.005	.007	-.006	.026	--	--	--	--	--	--	--	--	--	--	--	--
	p	.181	.720	.152	.218	.810	.874	.623	.526	.567	.013	--	--	--	--	--	--	--	--	--	--	--	--
12. Charge Severity	*r*	.127	.004	.063	-.068	.070	-.086	-.033	.010	-.011	-.043	-.022	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.694	.000	.000	.000	.000	.002	.344	.311	.000	.034	--	--	--	--	--	--	--	--	--	--	--
13. RAI Score	*r*	.218	-.160	-.048	-.200	.187	-.093	-.105	-.089	.048	.070	.052	.104	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.016	.000	.000	.000	.000	.000	.014	.000	.009	.000	--	--	--	--	--	--	--	--	--	--

Table 3.2 Continued.

14. Violent Offender (y/n)	*r*	.038	-.033	.005	-.056	.017	.005	-.152	-.066	.054	-.165	-.002	-.161	.112	--	--	--	--	--	--	--	--
	p	.000	.002	.628	.000	.090	.638	.000	.000	.000	.000	.830	.000	.000	--	--	--	--	--	--	--	--
15. Length of Stay	*r*	.083	-.002	.034	-.048	.042	-.057	.008	-.024	.003	.025	.012	.019	.161	.103	--	--	--	--	--	--	--
	p	.000	.878	.001	.000	.000	.000	.448	.021	.760	.020	.252	.073	.000	.000	--	--	--	--	--	--	--
16. Recidivist (y/n)	*r*	.110	-.090	-.031	-.078	.133	-.056	-.174	-.155	-.003	-.032	-.023	-.033	-.030	-.024	-.012	--	--	--	--	--	--
	p	.000	.000	.002	.000	.000	.000	.000	.000	.778	.003	.028	.001	.133	.020	.226	--	--	--	--	--	--
17. Re-Detained (y/n)[a]	*r*	.070	-.062	-.023	-.052	.091	-.035	-.189	-.185	-.045	-.053	-.025	-.060	.033	-.053	.048	.557	--	--	--	--	--
	p	.000	.000	.025	.000	.000	.001	.000	.000	.000	.000	.015	.000	.091	.000	.000	.000	--	--	--	--	--
18. Number of Detentions	*r*	.138	-.094	-.023	-.091	.156	-.074	-.386	-.336	-.003	-.033	-.017	-.031	.035	-.017	.001	.591	.639	--	--	--	--
	p	.000	.000	.026	.000	.000	.000	.000	.000	.744	.002	.113	.002	.074	.104	.885	.000	.000	--	--	--	--
19. Days to 2nd Detention	*r*	.076	-.018	.034	-.065	.040	-.027	-.311	-.211	.012	.037	.029	.039	.065	.088	.002	-.283	-.800	-.174	--	--	--
	p	.000	.214	.014	.000	.004	.051	.000	.000	.398	.011	.038	.006	.014	.000	.900	.000	.000	.000	--	--	--
20. Incarcerated (y/n)[a]	*r*	.028	-.022	.005	-.029	.029	-.001	-.192	-.215	-.073	-.036	-.009	-.055	.052	-.044	.108	.237	.356	.484	-.109	--	--
	p	.005	.034	.646	.004	.004	.894	.000	.000	.000	.001	.371	.00	.008	.000	.000	.000	.000	.000	.000	--	--
21. Number of Incarcerations	*r*	-.019	-.002	-.10	.010	-.009	.014	-.008	-.099	-.065	-.057	-.013	-.055	.048	-.031	.033	.035	.101	.087	-.057	.312	--
	p	.056	.867	.347	.322	.368	.154	.415	.000	.000	.000	.208	.000	.014	.003	.001	.001	.000	.000	.000	.000	--
22. Re-Detained/ Incarcerated (y/n)	*r*	.063	-.055	-.014	-.051	-.078	-.025	-.230	-.240	-.068	-.051	-.022	-.065	.051	-.059	.089	.510	.881	.694	-.498	.756	.229
	p	.000	.000	.180	.000	.000	.013	.000	.000	.000	.000	.032	.00	.010	.000	.000	.000	.000	.000	.000	.000	.000
23. Year of Detention	*r*	.261	-.105	-.005	-.159	.213	-.177	.185	.177	.026	-.165	.016	.113	.043	.033	.055	.058	-.108	-.112	-.135	-.230	-.140	-.160
	p	.000	.000	.628	.000	.000	.000	.000	.000	.011	.000	.021	.000	.029	.001	.000	.000	.000	.000	.000	.000	.000	.000

Note. *n* = Number; *r* = Pearson correlation, two-tailed; *p* = Significance level; RAI = Risk Assessment Inventory;
[a] Outcome (i.e., re-detention, incarceration) within two years of release from detention.

Table 3.3 Prevalence of Detained Adolescents and Length of Stay for First Detention Stay

	Detained Adolescents	Length of Stay (in Days)	
Year of Detention	Number (%) *N* = 9664	Mean (SD)	Range
1998 – 1999	1063 (11.0%)	9.55 (14.25)	0.0 – 102.0
2000 – 2001	1653 (17.1%)	9.73 (14.57)	0.0 – 90.0
2002 – 2003	1866 (19.3%)	9.57 (15.54)	0.0 – 156.0
2004 – 2005	2233 (23.1%)	7.32 (14.45)	0.0 – 180.0
2006 – 2007	915 (9.5%)	10.35 (16.00)	0.0 – 143.0
2008 – 2009	947 (9.8%)	12.63 (18.29)	0.0 – 141.0
2010 – 2011	987 (10.2%)	12.20 (15.83)	0.0 – 122.0
Total: 1998 – 2011	9664 (100.0%)	9.72 (15.45)	0.0 – 180.0

Note. *N* = Number; % = Percentage; SD = Standard Deviation.

Table 3.4 Criminal History Outcomes: Criminal Charges

Variables/Categories	Timing of Outcome	
	Detention Entry	6 Months Post-Detention
	Number (%) *N* = 9664	Number (%) *N* = 6401
Most Severe Charge		
Conduct-Related	4445 (46.0%)	1024 (10.6%)
Property-Related	2567 (26.6%)	747 (7.7%)
Drug/Alcohol	439 (4.5%)	285 (2.9%)
Sexual	395 (4.1%)	42 (0.4%)
Trespass/Loitering	385 (4.0%)	136 (1.4%)
Warrant Arrest	272 (2.8%)	--
Weapons	243 (2.5%)	28 (0.3%)
Modification or Probation Violation	170 (1.8%)	422 (4.4%)
Driving-Related	165 (1.7%)	35 (0.4%)
Resisting Arrest	114 (1.2%)	208 (2.2%)
Fraud	83 (0.9%)	--
Severe	44 (0.5%)	23 (0.2%)
Other	24 (0.2%)	19 (0.2%)
Missing/Unknown	319 (3.3%)	--
Reason for Detention Stay		--
Awaiting Action (Pre- or Post-Adjudication)	3314 (34.3%)	--
Court-Ordered Detention	487 (5.0%)	--
Outright Arrest/New Arrest	4953 (51.3%)	--
Warrant Arrest or Failure to Appear	406 (4.2%)	--
Modification or Probation Violation	47 (0.5%)	--
Other	34 (0.3%)	--
Missing/Unknown	423 (4.4%)	--
Release Decision		
Released to Home Detention	4687 (48.5%)	--
Community Adjustment	1221 (12.6%)	--
Placed in County Jail or DOC Prison	405 (4.2%)	--
Released to Parent/Guardian	2542 (26.3%)	--
Released to Emergency Shelter or CPS	45 (0.5%)	--
Released for Placement (Not Specified)	345 (3.6%)	--
Released to Treatment or Hospital	20 (0.2%)	--
Other	54 (0.5%)	--
Missing/Unknown	344 (3.6%)	--

Note. *n* = Number; % = Percentage; Dept. = Department; DOC = Department of Corrections; CPS = Child Protective Services.

Table 3.5 Mental Health and Criminal History Outcomes by Gender, Race, and Age Cohorts

	Total Sample	Gender			Race			Age Cohorts			
		Females	Males	--	White	Black	--	Younger	Mid-Age	Older	--
Variables	N (%) N = 9664	N (%) n = 3602	N (%) n = 6062	χ^2, p-value	N (%) n = 3367	N (%) n = 5667	χ^2, p-value	N (%) n = 2406	N (%) n = 3925	N (%) n = 3334	χ^2, p-value
Violent Offender (y/n)	3542 (36.7%)	1235 (34.3%)	2307 (38.1%)	13.83, $p < .001$	1153 (34.2%)	2125 (37.5%)	9.67, $p = .002$	1147 (47.7%)	1421 (36.2%)	974 (29.2%)	205.62, $p < .001$,
Recidivist (y/n)	6401 (66.2%)	2093 (58.1%)	4308 (71.1%)	169.66, $p < .001$	1963 (58.3%)	4012 (70.8%)	147.23, $p < .001$	1996 (83.0%)[a]	2828 (72.1%)[b]	1577 (47.3%)[c]	895.94, $p < .001$
Re-Detained (y/n)	5227 (54.1%)	1729 (48.0%)	3498 (57.7%)	85.65, $p < .001$	1673 (49.7%)	3226 (56.9%)	44.57, $p < .001$	1665 (69.2%)[a]	2394 (61.0%)[a]	1168 (35.0%)[b]	784.49, $p < .001$
Incarcerated (y/n)	1538 (15.9%)	549 (15.2%)	989 (16.3%)	1.95, $p = .168$	514 (15.3%)	943 (16.6%)	2.94, $p = .086$	593 (24.6%)[a]	696 (17.7%)[b]	249 (7.5%)[b]	324.56, $p < .001$
Disorder (y/n)	7015 (72.5%)	2689 (74.7%)	4326 (71.4%)	12.29, $p < .001$	2690 (79.9%)	3847 (67.9%)	152.29, $p < .001$	1867 (77.6%)[a]	2869 (73.1%)[b]	2279 (68.4%)[c]	60.98, $p < .001$
Mental Disorder (y/n)[+]	3571 (37.0%)	2515 (69.8%)	3838 (63.3%)	42.51, $p < .001$	2489 (73.9%)	3428 (60.8%)	168.64, $p < .001$	1739 (72.3%)	2612 (66.6%)	2002 (60.0%)	94.80, $p < .001$
Substance-Related Disorder (y/n)[+]	662 (6.9%)	1288 (35.8%)	2156 (35.6%)	0.85, $p = .861$	1463 (43.5%)	1744 (30.8%)	148.23, $p < .001$	803 (33.4%)	1445 (36.8%)	1196 (35.9%)	7.86, $p = .020$
Comorbid (y/n)[+]	2782 (28.8%)	1114 (30.9%)	1668 (27.5%)	12.82, $p < .001$	1262 (37.5%)	1325 (23.4%)	205.49, $p < .001$	675 (28.1%)[a]	1188 (20.3%)[b]	919 (27.6%)[a]	7.22, $p = .026$
Pre-Detention Treatment (y/n)	2438 (25.2%)	617 (17.1%)	1821 (30.0%)	199.64, $p < .001$	841 (25.0%)	1396 (24.6%)	0.72, $p = .366$	492 (20.4%)[a]	975 (24.8%)[ab]	971 (29.1%)[c]	56.26, $p < .001$
Risk Assessment Inventory Level	N (%) n = 2568	N (%) n = 448	N (%) n = 2120	U-test, p-value	N (%) n = 638	N (%) n = 1678	U-test, p-value	N (%) n = 527	N (%) n = 1034	N (%) n = 1007	U-test, p-value
Low-Risk (y/n)[++]	201 (7.8%)	108 (24.1%)	93 (4.4%)		90 (14.1%)	89 (5.3%)		23 (4.4%)[a]	63 (6.1%)[a]	115 (11.4%)[b]	
Medium-Risk(y/n)[++]	1292 (50.3%)	264 (58.9%)	1028 (48.5%)	28842.0, $p < .001$	329 (51.6%)	838 (49.9%)	45638.50, $p < .001$	284 (53.9%)[a]	495 (47.9%)[b]	513 (50.9%)[bc]	30266.50, $p < .001$
High-Risk (y/n)[++]	1075 (41.9%)	76 (17.0%)	999 (47.1%)		219 (34.3%)	751 (44.8%)		220 (41.7%)[a]	476 (46.0%)[b]	379 (37.6%)[c]	

Table 3.5 Continued.

	Total Sample	Gender			Race			Age Cohorts			
		Females	Males	--	White	Black	--	Younger	Mid-Age	Older	--
MAYSI-2	N (%) *n* = 2575	N (%) *n* = 467	N (%) *n* = 2065	χ^2, *p*-value	N (%) *n* = 646	N (%) *n* = 1645	χ^2, *p*-value	N (%) *n* = 524	N (%) *n* = 1023	N (%) *n* = 985	χ^2, *p*-value
Positive Screen[+++]	1758 (69.4%)	379 (81.2%)	1379 (66.8%)	145.90, $p < .001$	489 (75.7%)	1112 (67.6%)	288.39, $p < .001$	376 (71.8%)[a]	727 (71.1%)[a]	655 (66.5%)[b]	35.59, $p = .001$

Note. *N* = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; *p*-value = significance level; *U*-test = Mann-Whitney *U*-tests; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. For age cohorts, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired cohorts.

[+] Participants able to meet criteria for more than one type of disorder, so percentages do not add up to 100%.
[++] Percentages calculated out of number of participants that obtained Risk Assessment Inventory scores.
[+++] Percentages calculated out of total number of participants that completed the MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.6 Post-Detention Criminal History Outcomes: Recidivism, Detention, and Incarceration

Criminal History Outcomes	Number (%) *N* = 9664
Recidivism (y/n)	6401 (66.2%)
Recidivism within 3 Months	1953 (20.2%)
Recidivism within 4-6 Months	1016 (10.5%)
Recidivism within 7-24 Months	801 (8.3%)
Recidivism after 2 Years	2631 (27.2%)
Re-Detained (y/n)[a]	5227 (54.1%)
No 2nd Detention	4437 (45.9%)
2nd Detention Stay within 1 Day	114 (1.2%)
2nd Detention Stay within 1 Month	797 (8.2%)
2nd Detention Stay within 2 Months	675 (7.0%)
2nd Detention Stay within 3 Months	498 (5.2%)
2nd Detention Stay within 4-6 Months	955 (9.9%)
2nd Detention Stay within 7-12 Months	969 (10.0%)
2nd Detention Stay within 1-2 Years	775 (8.0%)
2nd Detention Stay after 2 Years	444 (4.6%)
Incarcerated in Prison (y/n)	1538 (15.9%)
No Incarceration	8166 (84.5%)
Incarceration with 1 Day	122 (1.3%)
Incarceration within 1 Month	10 (0.1%)
Incarceration within 2 Months	34 (0.4%)
Incarceration within 3 Months	37 (0.4%)
Incarceration within 4-6 Months	127 (1.3%)
Incarceration within 7-12 Months	281 (2.9%)
Incarceration within 1-2 Years	424 (4.4%)
Incarceration after 2 Years	462 (4.8%)

Note. *N* = Number; % = Percentage. [a] Re-Detained refers to second, separate placement in detention, following first detention stay

Table 3.7 Massachusetts Youth Screening Instrument-2nd Edition (MAYSI-2) among Cohort Two

MAYSI-2 Variables	Number (%) *N* = 2575	Mean (SD)	Range
Total Score (52 items)		14.23 (9.29)	0.0 – 46.0
Alcohol/Drug Use (8 items)	--	1.62 (2.15)	0.0 – 8.0
Angry-Irritable (9 items)	--	4.19 (2.82)	0.0 – 9.0
Depressed-Anxious (9 items	--	2.41 (2.21)	0.0 - 9.0
Somatic Complaints (6 items)	--	2.55 (1.86)	0.0 – 6.0
Suicidal Ideation (5 items)	--	0.79 (1.42)	0.0 – 5.0
Thought Disturbances (5 items)	--	0.71 (0.98)	0.0 – 5.0
Traumatic Experiences (5 items)	--	1.92 (1.54)	0.0 – 5.0
Score within Caution or Warning Range		--	--
Alcohol/Drug Use (8 items)	522 (20.3%)	--	--
Angry-Irritable (9 items)	1212 (47.0%)	--	--
Depressed-Anxious (9 items	1036 (40.2%)	--	--
Somatic Complaints (6 items)	1256 (48.8%)	--	--
Suicidal Ideation (5 items)	523 (20.3%)	--	--
Thought Disturbances (5 items)	1156 (44.9%)	--	--
Traumatic Experiences (5 items)	1409 (55.6%)	--	--
Positive Screen (y/n)	1748 (67.9%)	--	--
≥1 Scale within Warning Range	867 (33.7%)	--	--
≥1 Scale within Caution Range	2065 (80.2%)	--	--
Number of Caution Subscales	--	2.79 (2.12)	0.0 – 7.0
Number of Warning Subscales	--	0.88 (1.46)	0.0 – 7.0

Note. Only participants from cohort two (i.e., detained during 2006 – 2011) completed the Massachusetts Youth Screening Instrument-2nd Edition. *n* = Number; % = Percentage; SD = Standard deviation; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.8 Correlation Matrix: Demographic and Mental Health Variables

Variables		Male	White	W.M.	W.F.	B.M.	B.F.	Age	1	2	3	4	5	6	7	8	9	10	11	12	13
1. MAYSI-2 Scores	*r*	-.213	.139	.04	.176	-.180	.114	.010	--	--	--	--	--	--	--	--	--	--	--	--	
	p	.000	.000	.042	.000	.000	.000	.324	--	--	--	--	--	--	--	--	--	--	--	--	
2. Positive Screen on MAYSI-2 (y/n)	*r*	-.121	.079	.034	.090	-.099	.076	-.040	.680	--		--	--	--	--	--	--	--	--	--	
	p	.000	.000	.090	.000	.000	.000	.039	.000	--	--	--	--	--	--	--	--	--	--	--	
3. Number of Caution Scales on MAYSI-2	*r*	-.196	.124	.033	.161	-.162	.104	-.049	.938	.753	--	--	--	--	--	--	--	--	--	--	
	p	.000	.000	.092	.000	.000	.000	.014	.000	.000	--	--	--	--	--	--	--	--	--	--	
4. Any Disorder (y/n)	*r*	-.036	.130	.058	.096	-.089	-.046	-.086	.139	.072	.107	--	--	--	--	--	--	--	--	--	
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	
5. Mental Disorder (y/n)	*r*	-.066	.137	.049	.115	-.108	-.030	-.106	.145	.078	.113	.851	--	--	--	--	--	--	--	--	
	p	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	
6. Conduct Disorder (y/n)	*r*	.153	-.005	.072	-.098	.075	-.094	-.187	.097	.075	.100	.450	.529	--	--	--	--	--	--	--	
	p	.000	.620	.000	.000	.000	.000	.000	.035	.000	.000	.000	.000	--	--	--	--	--	--	--	
7. Non-Conduct Mental Disorder (y/n)	*r*	-.226	.146	-.024	.220	-.189	.066	.083	.021	-.015	-.002	.410	.482	-.489	--	--	--	--	--	--	
	p	.000	.000	.020	.000	.000	.000	.000	.655	.480	.913	.000	.000	.000	--	--	--	--	--	--	
8. Substance-Related Disorder (y/n)	*r*	-.002	.128	.062	.92	-.057	-.078	.020	.113	.076	.095	.457	.236	.166	.071	--	--	--	--	--	--
	p	.849	.000	.000	.000	.000	.000	.045	.000	.000	.002	.000	.000	.000	.000	--	--	--	--	--	--
9. Comorbid (y/n)	*r*	-.036	.151	.050	.123	-.087	-.069	-.005	.133	.089	.112	.391	.459	.286	.176	.854	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.624	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--
10. Number of Disorders	*r*	-.093	.178	.058	.164	-.134	-.040	-.091	.250	.168	.214	.465	.505	.462	.042	.440	.537	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--
11. Number of Mental Disorders	*r*	-.092	.150	.045	.141	-.122	-.023	-.116	.176	.168	.214	.437	.514	.495	.017	.279	.403	.962	--	--	--
	p	.000	.000	.000	.000	.000	.023	.000	.000	.000	.000	.000	.000	.000	.099	.000	.000	.000	--	--	--
12. Number of Substance Disorders	*r*	-.050	.172	.067	.149	-.102	-.068	.029	.173	.095	.115	.314	.220	.137	.094	.687	.658	.615	.376	--	--
	p	.000	.000	.000	.000	.000	.000	.005	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--
13. Pre-Detention Diagnosis (y/n)	*r*	.196	-.053	.033	-.115	.147	-.131	.132	.060	.023	.041	--	.173	.345	-.247	-.045	.057	.198	.246	-.047	--
	p	.000	.000	.006	.000	.000	.000	.000	.005	.301	.061	.000	.000	.000	.000	.000	.000	.000	.000	.000	--
14. Post-Detention Diagnosis (y/n)	*r*	-.053	.134	.055	.106	-.101	-.034	-.098	.005	.023	.025	.994	.837	.415	.432	.459	.383	.440	.412	.317	-.995
	p	.000	.000	.000	.000	.000	.001	.000	.790	.250	.207	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Note. W. M. = White Males; W. F. = White Females; B. M. = Black Males; B. F. = Black Females; *r* = Pearson correlation, two-tailed; *p* = Significance level. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.9 Mental Disorders and Substance-Related Disorders among Sample

Variables (*N* = 9664)	Number (%)	Mean (SD)	Range
Disorder (y/n)	7015 (72.6%)	--	--
Mental Disorder (y/n)	6353 (65.7%)	--	--
Primary Mental Health Diagnosis		--	--
Conduct-Related Disorder (CD, ODD)	1585 (16.4%)	--	--
Mood Disorder (Depression, Bipolar)	1529 (15.8%)	--	--
Attention Deficit/Hyperactivity Disorder	1219 (12.6%)	--	--
Anxiety Disorder (Generalized, OCD, PTSD)	849 (8.8%)	--	--
Adjustment or Somatization Disorder	576 (6.0%)	--	--
Psychosis-Related Disorder	143 (1.5%)	--	--
Other (Eating, Sleep, Feeding, Personality)	452 (4.7%)	--	--
Meets Criteria for Following Diagnoses[a]		--	--
Mood Disorder (Depression, Bipolar)	3872 (40.1%)	--	--
Conduct-Related Disorder (CD, ODD)	3373 (34.9%)	--	--
Anxiety (Generalized, OCD, PTSD)	2468 (25.5%)	--	--
Attention Deficit/Hyperactivity Disorder	2138 (22.1%)	--	--
Adjustment or Somatization Disorder	1412 (14.6%)	--	--
Psychosis-Related Disorder	697 (7.2%)	--	--
Other (Eating, Sleep, Feeding, Personality)	1448 (15.0%)	--	--
Number of Mental Disorders	--	2.90 (4.08)	0.0 – 35.0
1 Disorder	1634 (16.9%)	--	--
2 – 3 Disorders	1970 (20.4%)	--	--
4 – 5 Disorders	1076 (11.1%)	--	--
≥6 Disorders	1673 (17.3%)	--	--
Substance-Related Disorder (y/n)	3444 (35.6%)	--	--
Primary Substance-Related Diagnosis		--	--
Cannabis-Related Disorder	1647 (17.0%)	--	--
Alcohol-Related Disorder	821 (8.5%)	--	--
Drug-Related Disorder (Opioid, Tobacco)	760 (7.9%)	--	--
Other (Use During Pregnancy, Fetal Alcohol)	210 (2.2%)	--	--
Meets Criteria for Following Diagnoses[a]		--	--
Cannabis-Related Disorder	2154 (22.3%)	--	--
Drug-Related (Opioid, Tobacco)	1564 (16.2%)	--	--
Alcohol-Related Disorder	1177 (12.2%)	--	--
Number of Substance-Related Disorders	--	0.72 (1.41)	0.0 – 17.0
1 Disorder	1848 (19.1%)	--	--
2 – 3 Disorders	1171 (12.1%)	--	--
≥4 Disorders	395 (4.1%)	--	--
Total Number of Disorders	--	3.62 (4.79)	0.0 – 43.0
1 Disorder	1629 (16.9%)	--	--
2 – 3 Disorders	2061 (21.3%)	--	--
4 – 5 Disorders	1140 (11.8%)	--	--
6 – 7 Disorders	745 (7.7%)	--	--
≥8 Disorders	1440 (14.9%)	--	--

Note. N = Number; % = Percentage; y/n = yes/no; SD = Standard Deviation; CD = Conduct disorder; ODD = Oppositional defiant disorder; OCD = Obsessive-compulsive disorder; PTSD = Post-traumatic stress disorder. [a] Participants able to meet criteria for multiple disorders, so percentages do not total 100%.

Table 3.10 Prevalence of Pre-Detention and During Detention Treatment Utilization: Subdivided by Treatment Type and Treatment Setting

Treatment Variables (N = 9664)	Timing of Treatment Utilization					
	Any Time Prior to Detention	2 Years Prior to Detention	1 Year Prior to Detention	6 Months Prior to Detention	1 Month Prior to Detention	During Detention
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)
Any Treatment	2438 (25.2%)	2141 (22.2%)	1858 (19.2%)	1538 (15.9%)	918 (9.5%)	323 (3.3%)
Mental Health	2297 (23.8%)	1957 (20.3%)	1674 (17.3%)	1365 (14.2%)	797 (8.2%)	302 (7.1%)
Substance-Related	354 (3.7%)	320 (3.7%)	285 (2.9%)	214 (2.2%)	117 (1.2%)	14 (0.1%)
Either/Both	575 (5.9%)	200 (2.1%)	181 (1.9%)	124 (1.3%)	47 (0.5%)	15 (0.2%)
Outpatient Treatment	2435 (25.2%)	2027 (21.0%)	1766 (18.3%)	1477 (15.3%)	873 (9.0%)	315 (3.3%)
Mental Health	2270 (23.5%)	1905 (19.7%)	1647 (17.0%)	1344 (13.9%)	774 (8.0%)	294 (3.0%)
Substance-Related	300 (4.1%)	212 (2.2%)	175 (1.3%)	121 (1.3%)	91 (0.9%)	14 (0.2%)
Either/Both	537 (5.6%)	138 (1.4%)	130 (1.3%)	103 (1.1%)	44 (0.5%)	15 (0.2%)
Non-Outpatient Treatment	718 (7.4%)	611 (6.3%)	488 (5.0%)	365 (3.7%)	157 (1.6%)	16 (0.2%)
Mental Health	571 (6.1%)	368 (4.7%)	344 (3.6%)	251 (2.6%)	89 (0.9%)	14 (0.1%)
Substance-Related	153 (1.6%)	134 (1.4%)	132 (1.4%)	109 (1.1%)	66 (0.7%)	2 (0.02%)
Either/Both	191 (2.0%)	88 (0.9%)	62 (0.64%)	30 (0.3%)	6 (0.1%)	0 (0.0%)
Inpatient Stay	456 (4.7%)	334 (3.5%)	257 (2.7%)	174 (1.7%)	34 (0.3%)	10 (0.1%)
Mental Health	416 (4.3%)	294 (3.0%)	215 (2.2%)	148 (1.5%)	30 (0.3%)	10 (0.1%)
Substance-Related	11 (0.1%)	5 (0.04%)	5 (0.04%)	3 (0.03%)	0 (0.0%)	0 (0.0%)
Either/Both	63 (0.7%)	54 (0.6%)	54 (0.6%)	29 (0.3%)	5 (0.1%)	0 (0.0%)
Emergency Department Visit	426 (4.4%)	385 (3.9%)	313 (3.2%)	239 (2.5%)	128 (1.3%)	6 (0.1%)
Mental Health	285 (2.9%)	246 (2.5%)	199 (2.1%)	145 (1.5%)	63 (0.7%)	4 (0.03%)
Substance-Related	146 (1.5%)	131 (1.4%)	127 (1.3%)	105 (1.1%)	66 (0.7%)	2 (0.02%)
Either/Both	155 (1.6%)	27 (0.7%)	15 (0.2%)	2 (0.02%)	2 (0.02%)	0 (0.0%)

Note. N = Number; % = Percentage. Participants may have obtained more than one treatment, so percentages do not add to 100%.

Table 3.11 Correlation Matrix: Demographics, Pre-Detention Treatment Utilization, and During Detention Treatment Utilization

Variables (N = 9664)		Male	White	Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Pre-Detention Treatment (y/n)	*r*	.145	.004	.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.715	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Pre-Detention MH Treatment (y/n)	*r*	.139	-.005	.050	.943	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.657	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3. Pre-Detention SR Treatment (y/n)	*r*	.055	.065	.131	.327	.176	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. Pre-Detention E/B Treatment (y/n)	*r*	.019	.085	.065	.426	.400	.296	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.058	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Pre-Detention Treatment Number	*r*	.085	-.015	.015	.449	.472	.123	.390	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.156	.142	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--
6. Pre-Detention MH Treatment Number	*r*	.084	-.019	.009	.439	.465	.094	.364	.998	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.075	.368	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--
7. Pre-Detention SR Treatment Number	*r*	.042	.028	.088	.182	.106	.552	.168	.110	.066	--	--	--	--	--	--	--	--	--	--	--
	p	.00	.009	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--
8. Pre-Detention E/B Treatment Number	*r*	.019	.043	.054	.212	.208	.223	.497	.296	.240	.304	--	--	--	--	--	--	--	--	--	--
	p	.056	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--
9. Pre-Detention Non-Outpatient (y/n)	*r*	.023	.082	.051	.479	.448	.331	.746	.442	.427	.313	.163	--	--	--	--	--	--	--	--	--
	p	.022	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--
10. Pre-Detention Outpatient (y/n)	*r*	.144	.003	.074	.982	.960	.331	.433	.458	.448	.215	.184	.486	--	--	--	--	--	--	--	--
	p	.000	.762	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--
11. Pre-Detention Non-Outpatient Number	*r*	.008	.059	.024	.286	.286	.201	.560	.500	.479	.487	.112	.598	.291	--	--	--	--	--	--	--
	p	.451	.000	.018	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--
12. Pre-Detention Outpatient Number	*r*	.086	-.017	.014	.447	.470	.119	.377	1.00	.998	.284	.108	.429	.455	.474	--	--	--	--	--	--
	p	.000	.105	.157	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--

Table 3.11 Continued.

13. Treatment During Detention (y/n)	*r*	.049	.014	-.030	.336	.303	.065	.184	.328	.326	.105	.042	.231	.298	.326	.200	--	--	--	--	--
	p	.000	.194	.004	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--
14. MH Treatment During Detention (y/n)	*r*	.025	.008	-.036	.223	.216	.024	.118	.297	.297	.073	.018	.161	.208	.295	.180	.680	--	--	--	--
	p	.013	.469	.000	.000	.000	.019	.000	.000	.000	.000	.076	.000	.000	.000	.000	.000	--	--	--	--
15. S-R Treatment During Detention (y/n)	*r*	.023	.015	.018	.067	.026	.126	.056	.018	.016	.016	.056	.056	.051	.018	.011	.186	.044	--	--	--
	p	.026	.158	.074	.000	.011	.000	.000	.071	.119	.127	.000	.000	.000	.071	.262	.000	.000	--	--	--
16. E/B Treatment During Detention (y/n)	*r*	.055	-.778	.233	.005	.049	.000	.000	.046	.041	.086	.054	.049	.068	.047	.020	.212	.030	.096	--	--
	p	.020	.003	.012	.067	.064	.090	.112	.000	.000	.000	.000	.000	.000	.000	.054	.000	.003	.000	--	--
17. Treatment During Detention Number	*r*	.029	.009	-.033	.231	.220	.043	.130	.297	.297	.080	.028	.168	.215	.296	.179	.704	.991	.151	.114	--
	p	.005	.404	.001	.000	.000	.000	.000	.000	.000	.000	.007	.000	.000	.000	.000	.000	.000	.000	.000	--
18. Year of Detention	*r*	.261	-.105	.185	.571	.560	.207	.276	.320	.345	.168	.134	.305	.576	.351	.214	.176	.117	.044	.059	.124
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Note. *n* = Number; r = Pearson correlation, two-tailed; *p* = Significance level; MH = Mental Health; SR = Substance-Related; E/B = Either/Both.

Table 3.12 Prevalence of Post-Detention Treatment Utilization: Subdivided by Treatment Type and Treatment Setting

	Timing of Post-Detention Treatment Utilization					
	1 Month	6 Months	1 Year	18 Months	2 Years	Any time
Treatment Variables	Number (%) *N* = 9502	Number (%) *N* = 9319	Number (%) *N* = 9156	Number (%) *N* = 9015	Number (%) *N* = 8915	Number (%) *N* = 9664
Any Treatment	971 (10.2%)	2055 (22.1%)	2659 (29.0%)	3002 (33.3%)	3269 (36.7%)	6437 (66.6%)
Mental Health	849 (8.9%)	1733 (18.6%)	2263 (24.7%)	2560 (28.4%)	2794 (31.4%)	5496 (56.9%)
Substance-Related	60 (0.5%)	399 (4.3%)	617 (6.7%)	788 (8.7%)	930 (10.4%)	2573 (26.6%)
Either/Both	61 (0.5%)	199 (2.1%)	325 (3.5%)	401 (4.4%)	483 (5.4%)	1652 (17.1%)
Outpatient Treatment	910 (9.6%)	2018 (21.7%)	2639 (28.8%)	2941 (32.6%)	3207 (36.0%)	6234 (64.5%)
Mental Health	825 (8.7%)	1717 (18.4%)	2242 (24.5%)	2541 (28.2%)	2751 (31.0%)	5364 (55.5%)
Substance-Related	52 (0.5%)	367 (3.9%)	563 (7.1%)	707 (7.8%)	833 (9.4%)	2268 (23.5%)
Either/Both	56 (0.5%)	186 (2.0%)	305 (3.3%)	360 (4.0%)	445 (5.0%)	1454 (15.1%)
Non-Outpatient	73 (0.8%)	259 (2.7%)	424 (5.6%)	562 (6.2%)	1119 (8.0%)	2515 (26.0%)
Mental Health	61 (0.6%)	193 (2.1%)	304 (3.3%)	404 (4.5%)	486 (5.5%)	1795 (18.6%)
Substance-Related	8 (0.1%)	57 (0.6%)	121 (1.3%)	183 (2.0%)	233 (2.6%)	977 (10.1%)
Either/Both	5 (0.1%)	30 (0.3%)	49 (0.5%)	66 (0.7%)	97 (1.0%)	547 (5.7%)
Inpatient Treatment	44 (0.4%)	153 (1.6%)	234 (2.6%)	296 (3.3%)	373 (4.2%)	1398 (14.5%)
Mental Health	42 (0.4%)	114 (1.2%)	185 (2.0%)	247 (2.7%)	289 (3.2%)	1002 (10.4%)
Substance-Related	0 (0.0%)	3 (0.03%)	12 (0.1%)	16 (0.2%)	25 (0.3%)	251 (2.6%)
Either/Both	3 (0.03%)	29 (0.3%)	43 (0.5%)	55 (0.6%)	76 (0.9%)	453 (4.7%)
Emergency Dept.	33 (0.3%)	161 (1.7%)	277 (3.0%)	382 (4.2%)	496 (5.6%)	1891 (19.6%)
Mental Health	23 (0.2%)	107 (1.1%)	163 (1.8%)	222 (2.5%)	288 (3.3%)	1276 (13.2%)
Substance-Related	8 (.1%)	54 (0.5%)	109 (1.2%)	167 (1.9%)	209 (2.4%)	808 (8.4%)
Either/Both	2 (.02%)	2 (0.02%)	8 (0.1%)	14 (0.3%)	27 (0.3%)	164 (1.7%)

Note. Dept. = Department; *N* = Number. Participants may have obtained more than one treatment, so percentages do not add up to 100%. Due to attrition, total number of participants (N) for analyses decreased as length of follow-up increased.

Table 3.13 Correlation Matrix: Demographics and Post-Detention Treatment Utilization

Variables (N = 8915)	r / p	Male	White	W.M.	W.F.	B. M.	B. F.	Age	1	2	3	4	5	6	7	8	9	10	11	12
1. Post-Detention Treatment (y/n)	*r*	.150	.041	.090	-.064	.054	-.126	-.103	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--
2. Post-Detention MH Treatment (y/n)	*r*	.103	.042	.080	-.047	.026	-.088	-.156	.889	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.016	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--
3. Post-Detention SR Treatment (y/n)	*r*	.115	.038	.061	-.031	.043	-.107	.070	.449	.179	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.003	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--
4. Post-Detention E/B Treatment (y/n)	*r*	.076	.048	.063	-.013	.017	-.075	.016	.319	.254	.303	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.233	.116	.000	.137	.000	.000	.000	--	--	--	--	--	--	--	--	--
5. Post-Detention Treatment Number	*r*	.062	.022	.054	-.031	.017	-.042	.156	.463	.487	.150	.246	--	--	--	--	--	--	--	--
	p	.000	.420	.000	.003	.111	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--
6. Post-Detention MH Treatment Number	*r*	.440	.019	.045	-.024	.009	-.028	-.167	.420	.473	.047	.148	.970	--	--	--	--	--	--	--
	p	.000	.075	.000	.024	.387	.008	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--
7. Post-Detention SR Treatment Number	*r*	.078	.003	.031	-.036	.042	-.059	.036	.235	.088	.523	.194	.171	-.001	--	--	--	--	--	--
	p	.000	.761	.003	.001	.000	.000	.001	.000	.000	.000	.000	.000	.954	--	--	--	--	--	--
8. Post-Detention E/B Treatment Number	*r*	.045	.019	.300	-.016	.010	-.037	-.005	.139	.116	.148	.436	.252	.065	.117	--	--	--	--	--
	p	.000	.086	.004	.141	.338	.000	.671	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--
9. Post-Detention Outpatient (y/n)	*r*	.147	.031	.083	-.068	.059	-.119	-.109	.981	.893	.416	.320	.469	.426	.234	.141	--	--	--	--
	p	.000	.005	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--
10. Post-Detention Non-outpatient (y/n)	*r*	-.003	.104	.070	.049	-.067	-.040	-.030	.389	.343	.326	.277	.311	.278	.145	.125	.336	--	--	--
	p	.794	.000	.000	.000	.000	.000	.005	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--
11. Post-Detention Outpatient Number	*r*	.006	.077	.053	.038	-.035	-.043	-.035	.254	.250	.174	.259	.300	.274	.087	.137	.234	.649	--	--
	p	.570	.000	.000	.000	.001	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--
12. Post-Detention Non-Outpatient Number	*r*	.063	.020	.052	-.033	.018	-.041	-.157	.458	.483	.143	.238	.999	.970	.168	.250	.465	.288	.263	--
	p	.000	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--
13. Year of Detention	*r*	.261	-.105	-.005	-.159	.213	-.177	.185	.426	.364	.225	.239	.206	.168	.137	.141	.420	.161	.109	.204
	p	.000	.000	.628	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Note. n = Number; r = Pearson correlation, two-tailed; p = Significance level; W. M. = White Male; W. F. = White Female; B. M. = Black Male; B. F. = Black Female; MH = Mental Health; SR = Substance-Related; E/B = Either/Both.

Table 3.14 Prevalence of Post-Detention Treatment Utilization within Two Years Post-Detention: Demographic Groups

	Total Sample	Gender			Race			Age Cohorts			
		Females	Males	--	White	Black	--	Younger	Mid-Age	Older	--
Treatment Variables	N (%) N = 8915	N (%) n = 3400	N (%) n = 5515	χ^2, p-value	N (%) n = 3164	N (%) n = 5185	χ^2, p-value	N (%) n = 2287	N (%) n = 3568	N (%) n = 3060	χ^2, p-value
Any Treatment	3269 (36.7%)	944 (27.6%)	2335 (42.3%)	200.22, $p < .001$	1221 (38.6%)	1791 (34.5%)	13.96, $p < .001$	947 (41.4%)[a]	1419 (39.8%)[a]	903 (29.5%)[b]	1054.42, $p < .001$
Mental Health	2794 (31.4%)	860 (25.3%)	1934 (35.1%)	94.03, $p < .001$	1057 (33.4%)	1525 (29.4%)	14.66, $p < .001$	905 (39.6%)[a]	1219 (34.2%)[b]	670 (21.9%)[c]	212.76, $p < .001$
Substance-Related	930 (10.4%)	202 (5.9%)	728 (13.2%)	118.97, $p < .001$	367 (11.6%)	478 (9.2%)	12.23, $p < .001$	147 (6.4%)[a]	423 (11.9%)[b]	360 (11.8%)[b]	3.84, $p = .147$
Either/Both	483 (5.4%)	109 (3.2%)	374 (6.8%)	52.63, $p < .001$	209 (6.6%)	239 (4.6%)	15.41, $p < .001$	91 (4.0%)[a]	246 (6.9%)[b]	146 (4.8%)[a]	26.88, $p < .001$
Outpatient	3207 (36.0%)	918 (27.0%)	2289 (41.5%)	190.47, $p < .001$	1179 (37.3%)	1776 (34.3%)	7.84, $p = .002$	938 (41.0%)[a]	1397 (39.2%)[a]	872 (28.5%)[b]	114.52, $p < .001$
Non-Outpatient	722 (8.1%)	279 (8.2%)	443 (8.0%)	0.08, $p = .782$	367 (11.6%)	302 (5.8%)	88.87, $p < .001$	200 (8.8%)[a]	315 (8.8%)[a]	207 (6.8%)[b]	11.20, $p = .014$

Note. N = Number; % = Percentage; χ^2 = Chi-square test; p-value = Significance level. For age cohorts, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired cohorts.

Table 3.15 Variables and Post-Detention Treatment Utilization Variables

Variables (N = 8915)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. MAYSI-2 Scores	*r*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p																									
2. MAYSI-2 – Positive Screen (y/n)	*r*	.680	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3. Number of Caution Scales	*r*	.938	.753	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. Disorder (y/n)	*r*	.139	.072	.107	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Mental Disorder (y/n)	*r*	.145	.078	.113	.851	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6. Substance-Related Disorder (y/n)	*r*	.113	.076	.095	.457	.236	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7. Comorbid Disorder (y/n)	*r*	.133	.089	.112	.391	.460	.850	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	--			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8. Conduct Disorder (y/n)	*r*	.095	.075	.098	.444	.522	.162	.281	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.038	.001	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9. Non-Conduct Disorder (y/n)	*r*	.020	-.01	.002	.419	.493	.080	.188	-.485	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.672	.661	.923	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10. Number of Disorders	*r*	.250	.168	.214	.465	.505	.440	.537	.452	.057	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11. Number of Mental Disorders	*r*	.174	.168	.202	.438	.515	.287	.412	.487	.032	.961	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.003	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12. Number of Substance Disorders	*r*	.175	.088	.108	.318	.232	.689	.658	.125	.101	.623	.383	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13. Pre-Detention Diagnosis (y/n)	*r*	.060	.023	.041	.329	.173	-.045	.057	.332	-.236	.198	.236	-.033	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.005	.301	.061	.000	.000	.024	.000	.000	.000	.000	.000	.008	--	--	--	--	--	--	--	--	--	--	--	--	--
14. Post-Detention Diagnosis (y/n)	*r*	.131	.069	.101	.994	.837	.459	.383	.411	.439	.446	.414	.319	-.463	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--

Table 3.15 Continued.

15. Post-Detention Treatment (y/n)	*r*	.146	.098	.120	.471	.443	.237	.250	.563	-.120	.350	.366	.137	.396	.090	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--
16. Post-Detention MH Treatment (y/n)	*r*	.159	.102	.134	.419	.493	.094	.203	.598	-.105	.254	.420	.068	.396	.138	.89	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--
17. Post-Detention SR Treatment (y/n)	*r*	.051	.031	.031	.211	.073	.458	.352	.157	-.085	.019	.316	.133	.160	-.065	.449	.179	--	--	--	--	--	--	--	--	--
	p	.010	.115	.120	.000	.000	.000	.000	.000	.000	.152	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--
18. Post-Detention E/B Treatment (y/n)	*r*	.091	.054	.077	.150	.177	.321	.376	.246	-.069	.102	.276	.157	.184	.014	.319	.254	.303	--	--	--	--	--	--	--	--
	p	.000	.007	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.191	.000	.000	.000	--	--	--	--	--	--	--	--
19. Number of Post-Detention Treatment	*r*	.103	.079	.086	.218	.242	.113	.158	.375	-.134	.556	.412	.093	.306	-.029	.463	.487	.500	.246	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.006	.000	.000	.000	.000	--	--	--	--	--	--	--
20. Number of Post-Detention MH Tx	*r*	.094	.072	.078	.198	.233	.054	.106	.356	-.124	.555	.409	.039	.285	-.02	.420	.473	.047	.148	.970	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.060	.000	.000	.000	.000	.000	--	--	--	--	--	--
21. Number of Post-Detention SR Treatment	*r*	.038	.03	.033	.111	.033	.240	.179	.083	-.050	.015	.031	.109	.096	-.048	.235	.088	.523	.194	.171	-.001	--	--	--	--	--
	p	.056	.125	.10	.000	.002	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.000	.000	.000	.954	--	--	--	--	--
22. Number of Post-Detention E/B Tx	*r*	.030	.023	.027	.066	.077	.142	.166	.123	-.046	.106	.087	.149	.106	-.015	.139	.116	.148	.436	.252	.065	.117	--	--	--	--
	p	.124	.244	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.154	.000	.000	.000	.000	.000	.000	.000	--	--	--	--
23. Post-Detention Outpatient (y/n)	*r*	.139	.092	.112	.464	.441	.222	.239	.563	-.123	.238	.368	.128	.392	.092	.981	.893	.416	.320	.469	.426	.234	.141	--		--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--		--
24. Post-Detention Non-Outpatient Tx (y/n)	*r*	.173	.142	.152	.184	.184	.217	.240	.244	-.064	.218	.375	.220	.201	.006	.389	.343	.326	.277	.311	.278	.145	.125	.336	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.579	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--
25. Number of Post-Detention Outpatient	*r*	.099	.075	.082	.216	.240	.108	.13	.372	-.134	.554	.403	.086	.304	-.029	.458	.483	.143	.238	.999	.970	.168	.250	.465	.288	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.007	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--
26. Number of Post-Detention Non-Outpatient	*r*	.148	.115	.110	.120	.130	.150	.177	.196	-.067	.258	.388	.199	.147	-.005	.254	.250	.174	.259	.300	.274	.087	.137	.234	.649	.263
	p	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.670	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Note. *n* = Number; *r* = Pearson correlation, two-tailed; *p* = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition; MH = Mental Health; SR = Substance-Related; E/B = Either/Both; Tx = Treatment.

Table 3.16 Prevalence of Treatment Utilization within Two Years Post-Detention: Mental Health Groups

		MAYSI-2				Disorder Type				Pre-Detention Treatment		
	Total Sample	No MAYSI-2	Non-Positive Screen	Positive Screen	--	Mental Disorder	Substance Disorder	Comorbid	--	No Prior Treatment	Prior Treatment	--
Treatment Variables	N (%) N = 8915	N (%) n = 6838	N (%) n = 603	N (%) n = 1474	χ^2, p-value	N (%) n = 3259	N (%) n = 617	N (%) n = 2567	χ^2, p-value	N (%) n = 6823	N (%) n = 2077	χ^2, p-value
Any Treatment	3269 (36.7%)	1974 (28.9%)[a]	354 (54.0%)[b]	963 (65.3%)[bc]	788.48, $p < .001$	1614 (49.5%)[a]	228 (37.0%)[b]	1427 (55.6%)[c]	2058.99, $p < .001$	1761 (25.8%)	1503 (72.1%)	1477.71, $p < .001$
Mental Health	2800 (31.4%)	1505 (23.9%)[a]	291 (44.4%)[b]	807 (55.1%)[c]	555.40, $p < .001$	1614 (49.5%)[a]	0 (0.0%)[b]	1186 (46.2%)[c]	2171.72, $p < .001$	1452 (21.3%)	1348 (64.4%)	1385.79, $p < .001$
Substance-Related	930 (10.4%)	445 (7.5%)[a]	114 (17.4%)[b]	306 (20.9%)[c]	273.25, $p < .001$	0 (0.0%)[a]	228 (37.0%)[b]	702 (27.3%)[c]	1918.03, $p < .001$	488 (7.2%)	442 (21.2%)	335.68, $p < .001$
Either/Both	496 (5.6%)	177 (2.8%)[a]	67 (10.2%)[b]	225 (15.4%)[c]	378.83, $p < .001$	5 (0.2%)[a]	0 (0.0%)[a]	491 (19.1%)[b]	547.87, $p < .001$	206 (3.0%)	290 (13.7%)	362.99, $p < .001$
Outpatient	3207 (36.0%)	1934 (26.8%)[a]	329 (54.6%)[b]	944 (64.04%)[c]	770.27, $p < .001$	1606 (49.3%)[a]	214 (34.7%)[b]	1387 (54.0%)[c]	2003.20, $p < .001$	1728 (25.3%)	1479 (70.7%)	1432.69, $p < .001$
Non-Outpatient	723 (8.1%)	358 (5.7%)[a]	39 (5.9%)[a]	255 (17.4%)[b]	218.31, $p < .001$	212 (6.5%)[a]	38 (6.2%)[a]	473 (18.4%)[b]	599.17, $p < .001$	328 (4.8%)	395 (18.9%)	429.81, $p < .001$

Note: N = Number; % = Percentage; χ^2 = Chi-square test; p-value = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. For MAYSI-2 groups and disorder type groups, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired groups.

Table 3.17 Correlation Matrix: Pre-Detention, During Detention, and Post-Detention Treatment Utilization

Variables (N = 9664)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Pre-Detention Treatment (y/n)	*r*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Pre-Detention MH Treatment (y/n)	*r*	.940	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3. Pre-Detention SR Treatment (y/n)	*r*	.331	.171	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. Pre-Detention E/B Treatment (y/n)	*r*	.422	.389	.311	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Pre-Detention Treatment Number	*r*	.448	.471	.133	.366	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6. Pre-Detention MH Treatment Number	*r*	.438	.465	.101	.339	.998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7. Pre-Detention SR Treatment Number	*r*	.179	.101	.537	.176	.130	.080	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8. Pre-Detn E/B Treatment Number	*r*	.217	.209	.229	.514	.325	.270	.202	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9. Pre-Detention Outpatient (y/n)	*r*	.981	.958	.335	.43	.456	.446	.182	.221	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10. Pre-Detn Non-Outpatient (y/n)	*r*	.473	.433	.350	.743	.413	.397	.165	.323	.480	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11. Pre-Detention Outpatient Number	*r*	.445	.469	.128	.352	.999	.998	.128	.311	.454	.399	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12. Pre-Detn Non-Outpatient Number	*r*	.278	.275	.216	.545	.488	.465	.111	.544	.283	.589	.460	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13. During Detention Treatment (y/n)	*r*	.336	.301	.047	.167	.319	.318	.037	.101	.294	.208	.318	.170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14. During Detn MH Treatment (y/n)	*r*	.220	.213	.018	.104	.298	.299	.014	.065	.205	.145	.297	.148	.674	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.082	.000	.000	.000	.183	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 3.17 Continued.

15. During Detn SR Treatment (y/n)	*r*	.059	.013	.107	.054	.010	.007	.051	.019	.039	.057	.010	.013	.154	.036	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.219	.000	.000	.349	.507	.000	.070	.000	.000	.360	.225	.000	.001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16. During Detn E/B Treatment (y/n)	*r*	.068	.065	.106	.122	.057	.049	.063	.112	.069	.061	.057	.026	.217	.035	.058	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17. During Detention Treatment Number	*r*	.228	.216	.036	.117	.299	.30	.023	.075	.211	.153	.298	.149	.695	.992	.134	.113	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.001	.000	.000	.000	.028	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--
18. Post-Detention Treatment (y/n)	*r*	.406	.393	.122	.218	.249	.244	.067	.128	.404	.238	.247	.165	.216	.148	.036	.050	.153	--	--	--	--	--	--	--	--	--	--	--	--
	p	.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--
19. Post-Detention MH Treatment (y/n)	*r*	.394	.398	.073	.204	.259	.257	.047	.113	.390	.228	.258	.167	.230	.162	.025	.037	.165	.889	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--
20. Post-Detention SR Treatment (y/n)	*r*	.192	.154	.187	.104	.057	.050	.099	.068	.193	.109	.056	.050	.052	.024	.057	.054	.033	.449	.179	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.023	.000	.000	.002	.000	.000	--	--	--	--	--	--	--	--	--	--
21. Post-Detention E/B Treatment (y/n)	*r*	.202	.177	.119	.178	.115	.10	.073	.166	.198	.157	.113	.103	.101	.045	.053	.119	.058	.319	.254	.303	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--
22. Number of Post-Detn Treatment	*r*	.310	.305	.056	.188	.291	.288	.046	.138	.303	.230	.289	.180	.315	.238	.010	.025	.237	.463	.487	.150	.256	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.343	.017	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--
23. Post- Detn MH Treatment Number	*r*	.283	.287	.014	.166	.283	.283	.019	.092	.276	.216	.282	.174	.314	.244	-.002	.003	.241	.420	.473	.047	.148	.970	--	--	--	--	--	--	--
	p	.000	.000	.180	.000	.000	.000	.071	.000	.000	.000	.000	.000	.000	.000	.815	.744	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--
24. Number of Post-Detn SR Treatment	*r*	.124	.092	.163	.059	.038	.032	.087	.060	.125	.057	.038	.033	.021	-.003	.050	.025	.004	,235	.088	.523	.194	.171	-.001	--	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.002	.000	.000	.000	.000	.000	.002	.050	.806	.000	.017	.703	.000	.000	.000	.000	.000	.954	--	--	--	--	--	--
25. Post- Detn E/B Treatment Number	*r*	.115	.095	.103	.113	.080	.065	.087	.237	.114	.083	.080	.048	.059	.023	.028	.106	.033	.139	.116	.148	.436	.252	.065	.117	--	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.032	.008	.000	.002	.000	.000	.000	.000	.000	.000	.000	--	--	--	--	--
26. Post-Detention Outpatient (y/n)	*r*	.400	.391	.114	.208	.250	.245	.066	.126	.397	.229	.248	.162	.219	.150	.036	.051	.155	.981	.893	.416	.320	.469	.426	.234	.141	--	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--	--
27. Post-Detn Non-Outpatient (y/n)	*r*	.220	.195	.112	.150	.144	.138	.043	.132	.215	.231	.139	.175	.141	.096	.033	.021	.10	.389	.343	.326	.277	.311	.278	.145	.125	.336	--	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.048	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--
28. Number of Post-Detn Outpatient	*r*	.307	.303	.053	.182	.290	.287	.045	.132	.301	.226	.289	.174	.317	.241	.011	.025	.241	.458	.483	.143	.238	,999	,970	.168	.250	.465	.288	--	--
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.312	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--
29. Post-Detn Non-Outpatient Number	*r*	.164	.145	.071	.198	.126	.118	.023	.184	.151	.197	.119	.241	.111	.075	.003	.010	.075	.254	.25	.174	.259	.30	.274	.087	.137	.234	.649	.263	--
	p	.000	.000	.000	.000	.000	.000	.032	.000	.000	.000	.000	.000	.000	.000	.754	.346	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--

Note. *n* = Number; *r* = Pearson correlation, two-tailed; *p* = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition; MH = Mental Health; SR = Substance-Related; E/B = Either/Both; Detn = Detention.

Table 3.18 Correlation Matrix: Criminal History Variables and Treatment Utilization within Two Years of Detention Release

Variables (N = 8915)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Age at First Contact	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Pre-Detention Arrests (y/n)	*r*	-.046	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3. Number of Pre-Detention Arrests	*r*	-.076	.229	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4. Number of Charges	*r*	.007	-.006	.026	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.260	.567	.013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Charge Severity	*r*	.017	-.011	-.043	-.022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.097	.000	.000	.034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6. Risk Assessment Inventory Scores	*r*	-.089	.048	.070	.052	.104	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.00	.014	.000	.009	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7. Violent Offender (y/n)	*r*	-.071	.056	-.026	-.005	-.165	.118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.013	.830	.000	.000	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--
8. Length of Stay	*r*	-.025	.000	.116	.014	.025	.163	.101	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.024	.978	.000	.182	.020	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9. Recidivism (y/n)	*r*	-.155	-.006	.170	-.022	-.032	-.030	-.022	-.010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.549	.000	.044	.003	.174	.039	.344	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10. Re-Detention (y/n)[a]	*r*	-.182	-.046	.137	-.023	-.053	.047	-.049	.049	.563	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.030	.000	.033	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11. Number of Detentions[b]	*r*	-.092	-.059	.087	-.015	-.033	.039	-.036	.012	.145	.350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.162	.002	.078	.001	.245	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12. Days to 2nd Detention	*r*	-.218	.014	-.107	.029	.037	.060	.092	.002	.000	.000	-.105	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.327	.000	.042	.011	.032	.000	.877	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13. Incarceration (y/n)[a]	*r*	-.216	-.070	.035	-.005	-.036	.049	-.045	.077	.245	.337	.149	-.097	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.001	.653	.001	.025	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14. Number of Incarcerations	*r*	-.264	-.042	.018	-.006	-.057	.046	-.030	.054	.553	.896	.322	.276	.364	--	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.085	.558	.000	.037	.005	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--	--
15. Re-Detained/ Incarcerated (y/n)*	*r*	-.084	-.063	.116	-.007	-.051	.067	-.026	.029	.045	.92	.440	-.051	.300	.109	--	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.000	.000	.520	.000	.002	.015	.006	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--	--

Table 3.18 Continued.

16. Post-Detention Treatment (y/n)	*r*	-.068	.035	.202	-.008	.008	-.036	.052	.073	.207	.152	-.021	-.096	-.040	-.064	.134	--	--	--	--	--	--	--	--	--	--	--
	p	.000	.001	.000	.441	.435	.068	.000	.000	.000	.000	.052	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--	--
17. Post-Detention MH Treatment (y/n)	*r*	-.118	.033	.159	-.006	.005	-.063	.068	.070	.191	.140	-.012	-.079	-.018	-.054	.129	.889	--	--	--	--	--	--	--	--	--	--
	p	.000	.002	.000	.590	.610	.002	.000	.000	.000	.000	.248	.00	.000	.000	.000	.000	--	--	--	--	--	--	--	--	--	--
18. Post-Detention SR Treatment (y/n)	*r*	.072	.004	.141	-.007	-.006	-.016	-.054	.006	.145	.118	.006	-.074	-.023	-.028	.100	.449	.179	--	--	--	--	--	--	--	--	--
	p	.000	.711	.000	.492	.563	.431	.000	.590	.000	.000	.550	.000	.029	.008	.000	.008	.000	--	--	--	--	--	--	--	--	--
19. Post-Detention E/B Treatment (y/n)	*r*	.014	.011	.136	-.002	-.010	-.015	-.024	.023	.110	.091	.007	-.049	-.020	-.015	.076	.319	.254	.303	--	--	--	--	--	--	--	--
	p	.216	.308	.000	.867	.367	.463	.021	.032	.000	.000	.499	.001	.057	.167	.000	.000	.000	.000	--	--	--	--	--	--	--	--
20. Number of Post-Detention Treatment	*r*	-.112	.007	.095	-.007	-.006	-.093	.040	.048	.146	.098	.00	-.043	.002	-.022	.10	.463	.487	.150	.246	--	--	--	--	--	--	--
	p	.00	.491	.000	.517	.560	.000	.000	.000	.000	.000	.972	.003	.821	.040	.000	.000	.000	.000	.000	--	--	--	--	--	--	
21. Number of Post-Detn MH Treatment	*r*	-.121	.005	.071	-.007	-.007	-.096	.050	.047	.129	.084	.001	-.033	.006	-.020	.090	.420	.473	.047	.148	.970	--	--	--	--	--	--
	p	.000	.616	.000	.517	.495	.000	.000	.000	.000	.000	.895	.023	.584	.055	.000	.000	.000	.000	.000	.000	--	--	--	--	--	--
22. Number of Post-Detn SR Treatment	*r*	.041	.005	.079	-.002	-.004	-.017	-.036	.006	.083	.069	-.002	-.038	-.003	-.016	.056	.235	.088	.523	.194	.171	-.001	--	--	--	--	--
	p	.00	.626	.000	.865	.693	.388	.001	.549	.000	.000	.870	.008	.786	.122	.000	.000	.000	.000	.000	.000	.954	--	--	--	--	--
23. Number of Post-Detn E/B Treatment	*r*	-.011	.008	.082	-.001	.008	.001	-.014	.015	.055	.038	-.008	-.035	-.016	.001	.029	.139	.116	.148	.436	.252	.065	.117	--	--	--	--
	p	.327	.436	.082	.893	.443	.964	.193	.153	.000	.000	.427	.016	.133	.925	.006	.000	.000	.000	.000	.000	.000	.000	--	--	--	--
24. Post-Detention Outpatient (y/n)	*r*	-.074	.031	.200	-.008	.007	-.032	.057	.076	.203	.148	-.021	-.092	-.040	-.065	.131	.981	.893	.416	.320	.469	.436	.234	.141	--	--	--
	p	.000	.003	.000	.439	.512	.105	.000	.000	.000	.000	.045	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--	--
25. Post-Detention Non-Outpatient (y/n)	*r*	-.012	.021	.097	-.003	-.014	-.107	.013	.027	.121	.085	.000	-.054	-.027	-.021	.073	.389	.343	.326	.277	.311	.278	.145	.125	.202	--	--
	p	.294	.051	.000	.773	.202	.000	.224	.010	.000	.000	.975	.000	.010	.046	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--	--
26. Number of Post-Detn Outpatient	*r*	-.114	.007	.093	-.007	-.006	-.089	.041	.054	.143	.096	.000	-.042	.002	-.022	.099	.458	.483	.143	.238	.999	.907	.168	.250	.465	.288	--
	p	.000	.498	.000	.489	.591	.000	.000	.000	.000	.000	.972	.004	.817	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	--
27. Number of Post-Detn Non-Outpatient	*r*	-.015	.012	.068	.001	-.011	-.101	.018	.015	.076	-.057	-.005	-.024	-.011	-.019	.051	.254	.250	.174	.259	.30	.274	.087	.137	.234	.649	.263
	p	.178	.248	.00	.978	.306	.000	.092	.145	.000	.000	.656	.099	.318	.079	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Note. *n* = Number; *r* = Pearson correlation, two-tailed; *p* = Significance level; MH = Mental Health; SR = Substance-Related; E/B = Either/Both; Detn = Detention.
[a] Outcome (i.e., re-detention, incarceration) within two years of release from detention. [b] Number of detentions includes first detention stay.

Table 3.19 Prevalence of Treatment Utilization within Two Years of Detention Release: Criminal History Groups

	Total Sample	Violent Offender			Recidivist[+]			Re-Detained/Incarcerated[++]		
		No	Yes	--	No	Yes	--	No	Yes	--
Treatment Variables	N (%) *n* = 8915	N (%) *n* = 5661	N (%) *n* = 3254	χ^2, p-value	N (%) *n* = 5447	N (%) *n* = 3468	χ^2, p-value	N (%) n = 4010	N (%) *n* = 4905	χ^2, p-value
Any Treatment	3269 (36.7%)	1968 (34.8%)	1301 (40.0%)	24.22, $p < .001$	1563 (28.7%)	1706 (49.2%)	383.37, $p < .001$	1184 (29.5%)	2085 (42.5%)	160.10, $p < .001$
Mental Health	2800 (31.4%)	1648 (29.0%)	1157 (35.6%)	40.97, $p < .001$	1325 (24.3%)	1475 (42.5%)	326.02, $p < .001$	994 (24.8%)	1806 (36.8%)	148.25, $p < .001$
Substance-Related	930 (10.4%)	661 (11.7%)	269 (8.3%)	25.71, $p < .001$	376 (6.9%)	554 (16.0%)	186.63, $p < .001$	283 (7.1%)	647 (13.2%)	88.82, $p < .001$
Either/Both	496 (5.6%)	339 (6.0%)	157 (4.8%)	5.32, $p = .021$	193 (3.5%)	303 (8.7%)	108.79, $p < .001$	146 (3.6%)	350 (7.1%)	51.28, $p < .001$
Outpatient	3207 (36.0%)	1918 (33.9%)	1289 (39.6%)	29.47, $p < .001$	1537 (28.2%)	1670 (48.2%)	365.68, $p < .001$	1163 (29.0%)	2044 (41.7%)	153.75, $p < .001$
Non-Outpatient	723 (8.1%)	444 (7.8%)	279 (8.6%)	1.48, $p = .227$	298 (5.5%)	425 (12.3%)	130.86, $p < .001$	237 (5.9%)	486 (9.9%)	47.32, $p < .001$

Note. N = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level. [+] Recidivism within two years post-detention. [++] Re-detained in detention center or incarcerated in prison within two years post-detention.

Table 3.20 Prevalence of Treatment Utilization within Two Years Post-Detention: Cohort One versus Cohort Two

		Cohort Groups		
	Total Sample (1998-2011)	Cohort One (1998-2005)	Cohort Two (2006-201)	--
Treatment Variables	Number (%) N = 8915	Number (%) n = 6574	Number (%) n = 2341	χ^2, p-value
Any Treatment	3269 (36.7%)	1935 (29.4%)	1334 (56.9%)	564.21, $p < .001$
Mental Health	2800 (31.4%)	1711 (26.0%)	1089 (46.5%)	336.48, $p < .001$
Substance-Related	930 (10.4%)	488 (7.4%)	442 (18.9%)	242.54, $p < .001$
Either/Both	496 (5.6%)	202 (3.1%)	294 (12.6%)	295.65, $p < .001$
Outpatient Treatment	3207 (36.0%)	1900 (28.9%)	1307 (55.8%)	543.51, $p < .001$
Mental Health	2767 (31.0%)	1688 (25.7%)	1079 (46.1%)	336.11, $p < .001$
Substance-Related	833 (9.4%)	435 (6.6%)	398 (17.0%)	219.75, $p < .001$
Either/Both	457 (5.1%)	175 (2.7%)	271 (11.6%)	288.64, $p < .001$
Non-Outpatient Treatment	1119 (8.0%)	579 (8.8%)	599 (25.6%)	423.85, $p < .001$
Mental Health	486 (5.5%)	287 (4.4%)	199 (8.5%)	68.43, $p < .001$
Substance-Related	233 (2.6%)	126 (1.9%)	107 (4.5%)	50.03, $p < .001$
Either/Both	97 (1.0%)	44 (0.6%)	53 (2.1%)	47.73, $p < .001$

Note. n = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level.

Table 3.21 Quantity of Treatment Services within Two Years Post-Detention: Demographic Groups

Treatment Variables	Total Sample *N* = 3269*		Gender			Race			Age Cohorts			
			Females *n* = 934	Males *n* = 2335	--	White *n* = 1222	Black *n* = 1791	--	Younger *n* = 947	Mid-Age *n* = 1419	Older *n* = 903	--
	M (SD)	Range	M (SD)	M (SD)	*t*-test, *p*-value	M (SD)	M (SD)	*t*-test, *p*-value	M (SD)	M (SD)	M (SD)	*F*-test, *p*-value
Total Number of Services												
Any Treatment	19.70 (30.05)	1.0 – 369.0	20.37 (31.33)	19.43 (29.52)	0.66, $p = .417$	20.34 (32.29)	19.97 (29.51)	0.11, $p = .741$	28.22 (36.13)[a]	18.25 (29.23)[b]	13.00 (20.84)[c]	64.17, $p < .001$
Mental Health	20.04 (30.96)	1.0 – 369.0	20.49 (31.41)	19.85 (30.75)	0.25, $p = .615$	20.477 (22.10)	20.52 (30.53)	0.01, $p = .971$	27.64 (35.61)[a]	27.96 (30.07)[a]	13.56 (22.64)[c]	46.25, $p < .001$
Substance-Related	5.31 (8.20)	1.0 – 132.0	4.12 (9.756)	5.64 (7.69)	8.06, $p = .002$	4.79 (6.62)	5.80 (9.52)	8.86, $p = .003$	5.61 (12.71)[a]	5.30 (6.89)[a]	5.21 (7.23)[a]	34.26, $p = .08$
Either/Both	6.71 (13.46)	1.0 – 147.0	5.06 (6.578)	7.20 (14.88)	6.63, $p = .01$	6.37 (13.08)	6.65 (12.80)	1.77, $p = .470$	8.58 (21.54)[a]	6.93 (11.74)[b]	5.22 (8.91)[bc]	2.96, $p = .053$
Outpatient	19.87 (30.25)	1.0 – 369.0	20.38 (31.62)	19.67 (20.69)	0.38, $p = .545$	20.69 (32.71)	20.02 (29.60)	0.33, $p = .567$	28.36 (36.23)[a]	18.35 (29.50)[b]	13.19 (20.87)[c]	62.33, $p < .001$
Non-Outpatient	2.06 (2.26)	1.0 – 20.0	1.96 (2.14)	2.11 (2.33)	0.08, $p = .387$	2.13 (2.34)	2.02 (2.15)	0.37, $p = .545$	2.34 (2.73)[a]	2.00 (2.19)[b]	1.86 (1.78)[b]	2.40, $p = .092$
Number of Outpatient Session Per Month												
Any Outpatient	1.31 (1.81)	0.04 – 30.42	1.29 (1.75)	1.32 (1.83)	0.15, $p = .695$	1.40 (1.94)	1.29 (1.79)	2.14, $p = .143$	1.54 (1.91)[a]	1.23 (1.79)[b]	1.19 (1.70)[b]	11.65, $p < .001$
Mental Health	1.40 (1.92)	0.04 – 30.42	1.34 (1.79)	1.43 (1.98)	1.16, $p = .283$	1.45 (2.02)	1.41 (1.93)	0.26, $p = .608$	1.58 (1.90)[a]	1.32 (1.93)[b]	1.28 (1.93)[b]	5.81, $p = .003$
Substance-Related	0.84 (.97)	0.04 – 9.18	0.89 (1.50)	0.92 (0.83)	4.26, $p = .04$	0.99 (1.24)	0.78 (0.82)	0.60, $p = .61$	0.76 (1.00)[a]	0.79 (0.99)[ab]	0.90 (0.95)[bc]	4.26, $p = .04$
Either/Both	1.19 (1.52)	0.04 – 10.14	0.99 (1.11)	1.24 (1.61)	0.84, $p = .36$	1.46 (1.90)	1.04 (1.23)	2.94, $p = .088$	1.95 (2.96)[a]	1.00 (1.16)[b]	1.23 (1.28)[b]	3.39, $p = .036$

Note. *n* = Number; M = Mean; SD = Standard deviation; p-value = Significance level. For age cohorts, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon t-tests between paired cohorts. * Participants who utilized treatment within two years post-detention. Analyses exclude participants with 0 treatment services.

Table 3.22 Quantity of Treatment Services within Two Years Post-Detention: Mental Health Groups

	Total Sample N = 3269*		MAYSI-2				Disorder Type				Pre-Detention Treatment		
			No MAYSI-2 n = 1974	Non-Positive Screen n = 332	Positive Screen n = 963	--	Mental Disorder n = 1614	Substance Disorder n = 228	Comorbid n = 1427	--	No n = 6823	Yes n = 2092	--
Treatment Variables	M (SD)	Range	M (SD)	M (SD)	M (SD)	F-test, p-value	M (SD)	M (SD)	M (SD)	F-test, p-value	M (SD)	M (SD)	t-test, p-value
Total Number of Treatment Services													
Treatment	19.70 (30.05)	1.0 – 369.0	17.76 (27.27)[a]	19.73 (27.67)[b]	23.66 (35.59)[c]	12.55, $p < .001$	19.52 (29.77)[a]	5.58 (6.23)[b]	22.16 (31.98)[c]	30.49, $p < .001$	14.62 (23.79)	25.72 (35.16)	114.48, $p < .001$
Mental Health	20.04 (30.96)	1.0 – 369.0	18.51 (28.46)[a]	20.06 (28.72)[a]	23.31 (26.12)[b]	6.64, $p < .001$	19.83 (30.03)[a]	0.0 (0.00)[b]	20.76 (32.50)[a]	44.93, $p < .001$	15.43 (25.07)	25.11 (35.66)	69.91, $p < .001$
Substance-Related	5.31 (8.20)	1.0 – 132.0	4.38 (5.32)[a]	5.79 (8.56)[ab]	6.70 (11.27)[b]	2.62, $p = .073$	0.0 (0.00)[a]	5.58 (6.23)[b]	5.22 (8.75)[b]	64.85, $p < .001$	4.73 (6.195)	5.96 (9.94)	6.46, $p = .011$
Either/Both	6.71 (13.46)	1.0 – 147.0	4.72 (8.05)[a]	8.77 (12.39)[b]	7.95 (17.04)[b]	0.48, $p = .622$	1.0 (0.00)[a]	6.76 (13.51)[b]	6.70 (13.45)[b]	68.15, $p < .001$	4.94 (10.99)	8.00 (14.90)	34.20, $p < .001$
Outpatient	19.88 (30.25)	1.0 – 369.0	17.91 (27.38)[a]	20.01 (28.02)[b]	23.85 (35.75)[c]	12.30, $p < .001$	19.62 (29.89)[a]	5.83 (6.37)[b]	22.34 (32.25)[c]	28.18, $p < .001$	14.75 (23.92)	25.97 (35.43)	113.34, $p < .001$
Non-Outpatient	2.06 (2.26)	1.0 – 20.0	1.94 (1.99)[a]	1.36 (1.06)[b]	2.09 (2.20)[a]	2.29, $p = .102$	1.91 (2.22)[a]	1.02 (0.16)[b]	2.20 (2.36)[ac]	5.41, $p = .002$	1.96 (2.26)	2.13 (2.27)	1.026, $p = .312$
Number of Outpatient Sessions per Month													
Outpatient	1.31 (1.81)	0.04 – 30.42	1.16 (1.51)[a]	1.43 (2.23)[b]	1.57 (2.14)[bc]	17.23, $p < .001$	1.33 (1.92)[a]	0.74 (0.85)[b]	1.37 (1.77)[a]	11.52 $p < .001$	0.94 (1.29)	1.75 (2.20)	168.58, $p < .001$
Mental Health	1.41 (1.92)	0.04 – 30.42	1.24 (1.59)[a]	1.60 (2.51)[b]	1.70 (2.31)[c]	18.12, $p < .001$	1.23 (1.92)[a]	0.00 (0.00)[b]	1.52 (1.92)[a]	28.12, $p < .001$	1.11 (1.39)	1.84 (2.31)	0.25, $p = .617$
Substance-Related	0.84 (0.97)	0.04 – 9.18	0.75 (0.94)[a]	0.79 (0.80)[a]	1.01 (1.09)[b]	3.22, $p = .041$	0.00 (0.00)[a]	0.74 (0.85)[b]	0.84 (0.97)[b]	3.84, $p = .051$	0.63 (1.09)	1.13 (1.34)	22.98, $p < .001$
Either/Both	1.19 (1.52)	0.04 – 10.14	0.85 (1.07)[a]	1.48 (1.68)[b]	1.44 (1.77)[b]	15.60, $p = .001$	0.66 (0.84)[a]	0.00 (0.00)[b]	1.20 (1.53)[c]	125.44, $p < .001$	0.94 (1.29)	1.63 (1.73)	5.58, $p = .018$

Note. n = Number; M = Mean; SD = Standard deviation; p-value = Significance level. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. For MAYSI-2 groups and disorder type groups, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon t-tests between paired groups. * Participants who utilized treatment within two years post-detention. Analyses exclude participants with 0 treatment services.

Table 3.23 Quantity of Treatment Services within Two Years Post-Detention: Criminal History Groups

	Total Sample N = 3269*		Violent Offender+			Recidivist+			Re-Detained/Incarcerated++		
			No n = 1968	Yes n = 1301	--	No n = 1563	Yes n = 1706	--	No n = 1100	Yes n = 2085	--
	M (SD)	Range	M (SD)	M (SD)	t-test, p-value	M (SD)	M (SD)	t-test, p-value	M (SD)	M (SD)	t-test, p-value
Total Number of Services											
Any Treatment	19.70 (30.05)	1.0 – 369.0	19.00 (30.10)	20.76 (29.95)	2.69, p = .101	16.86 (26.55)	22.30 (32.72)	26.90, p < .001	16.77 (25.29)	21.37 (32.33)	17.79, p < .001
Mental Health	20.04 (30.96)	1.0 – 369.0	19.52 (29.77)	20.76 (32.50)	1.10, p = .294	18.43 (25.10)	25.12 (32.66)	70.00, p < .001	18.51 (25.45)	21.03 (27.72)	6.92, p < .001
Substance-Related	5.31 (8.19)	1.0 – 132.0	5.49 (8.66)	4.90 (6.91)	0.12, p = .734	5.05 (6.56)	5.49 (9.15)	4.80, p = .029	5.15 (6.62)	5.39 (9.80)	4.93, p = .027
Either/Both	6.71 (13.46)	1.0 – 147.0	6.84 (13.30)	6.41 (13.85)	0.23, p = .633	6.20 (11.97)	7.03 (14.35)	0.08, p = .774	7.14 (15.36)	6.52 (12.58)	0.03, p = .860
Outpatient	19.88 (30.25)	1.0 – 369.0	19.23 (30.37)	20.84 (30.06)	2.17, p = .141	17.03 (26.88)	22.50 (32.85)	26.36, p < .001	16.91 (25.46)	21.59 (32.56)	17.70, p < .001
Non-Outpatient	2.07 (2.26)	1.0 – 20.0	1.96 (1.83)	2.20 (2.82)	1.84, p = .176	2.11 (2.46)	2.02 (2.12)	0.28, p = .597	2.02 (2.33)	2.07 (2.23)	0.08, p = .778
Number of Outpatient Session Per Month											
Any Outpatient	1.31 (1.81)	0.04 – 30.42	1.32 (1.95)	1.29 (1.58)	0.25, p = .650	1.23 (1.64)	1.39 (1.94)	5.80, p = .016	1.28 (1.57)	1.33 (1.93)	0.68, p = .409
Mental Health	1.41 (1.92)	0.04 – 30.42	1.42 (2.11)	1.38 (1.65)	8.52, p = .004	1.29 (1.72)	1.51 (2.09)	1.83, p = .177	1.33 (1.63)	1.44 (2.09)	0.30, p = .583
Substance-Related	0.84 (0.97)	0.04 – 9.18	0.89 (1.04)	0.71 (0.77)	3.25, p = .072	1.12 (1.26)	0.79 (0.91)	1.26, p = .262	0.94 (1.11)	0.78 (0.87)	3.07, p = .08
Either/Both	1.19 (1.52)	0.04 – 10.14	1.20 (1.60)	0.98 (1.32)	0.80, p = .372	1.32 (1.67)	1.11 (1.42)	0.74, p = .392	1.28 (1.57)	1.13 (1.51)	0.90, p = .372

Note. n = Number; M = Mean; SD = Standard deviation; p-value = Significance level. + Recidivism within two years post-detention. ++ Re-detained in detention center or incarcerated in prison within two years post-detention * Participants who utilized treatment within two years post-detention. Analyses exclude participants with 0 treatment services.

Table 3.24 Quantity of Treatment Services within Two Years Post-Detention: Cohort One versus Cohort Two

Treatment Variables	Total Sample *N* = 3269*		Cohort Groups				
			Cohort One *n* = 1935		Cohort Two *n* = 1334		--
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	*t*-test, *p*-value
Total Number of Treatment Services							
Treatment	19.70 (30.05)	1.0 – 369.0	19.25 (32.03)	1.0 – 314.0	20.97 (31.14)	1.0 – 369.0	3.56, $p = .059$
Mental Health	20.04 (30.96)	1.0 – 369.0	19.60 (29.08)	1.0 – 312.0	20.74 (22.68)	1.0 – 369.0	0.90, $p = .344$
Substance-Related	5.31 (8.20)	1.0 – 132.0	4.36 (5.33)	1.0 – 39.0	6.36 (10.39)	1.0 – 132.0	13.99, $p < .001$
Either/Both	6.71 (13.46)	1.0 – 147.0	4.29 (5.76)	1.0 – 40.0	8.37 (16.65)	1.0 – 147.0	11.23, $p < .001$
Outpatient	19.87 (30.25)	1.0 – 369.0	19.05 (28.06)	1.0 – 314.0	21.10 (33.15)	1.0 – 369.0	3.53, $p = .079$
Non-Outpatient	2.06 (2.26)	1.0 – 20.0	1.98 (2.06)	1.0 – 17.0	2.14 (2.49)	1.0 – 20.0	0.81, $p = .368$
Number of Outpatient Sessions per Month							
Outpatient	1.38 (1.79)	0.04 – 30.42	1.17 (1.51)	0.04 – 19.45	1.50 (2.13)	0.04 – 30.42	12.85, $p < .001$
Mental Health	1.40 (1.92)	0.04 – 30.42	1.25 (1.59)	0.04 – 19.45	1.63 (2.33)	0.04 – 30.42	24.85, $p < .001$
Substance-Related	0.84 (0.97)	0.04 – 9.18	0.70 (0.73)	0.04 – 4.92	0.97 (1.14)	0.04 – 9.18	1.06, $p = .305$
Either/Both	1.20 (1.52)	0.04 – 10.14	0.74 (0.93)	0.04 – 3.80	1.48 (1.73)	0.06 – 10.14	11.36, $p = .001$

Note. *n* = Number; SD = Standard deviation; *p*-value = Significance level. * Participants who utilized treatment within 2 years post-detention. Analyses exclude participants with 0 treatment services.

Table 3.25 Frequency of Treatment Services within Two Years Post-Detention

	Treatment Users	Time between Services (in Days)[+]	
Treatment Variables	Number (%) *N* = 3269*	Mean (SD)	Range
Outpatient	3207 (98.1%)	33.92 (54.93)	1.0 – 680.0
Mental Health	2751 (84.2%)	33.56 (53.27)	1.0 – 680.0
Substance-Related	833 (25.5%)	34.43 (56.56)	1.0 – 593.0
Either/Both	445 (13.6%)	38.03 (72.61)	2.0 – 471.0
Non-Outpatient	1119 (34.2%)	117.69 (128.13)	0.0 – 723.0
Mental Health	486 (14.9%)	117.50 (140.64)	1.0 – 615.0
Substance-Related	233 (9.8%)	415.19 (212.24)	52.0 – 723.0
Either/Both	97 (3.0%)	67.72 (49.37)	0.0 – 137.0
	Treatment Users	Length of Stay (in Days)[++]	
Inpatient Stay	373 (11.4%)	11.37 (24.36)	0.0 – 496.0
Mental Health	289 (8.8%)	12.56 (35.16)	0.0 – 496.0
Substance-Related	25 (0.8%)	10.37 (17.34)	0.0 – 61.0
Either/Both	76 (2.3%)	10.73 (24.73)	0.0 – 212.0

Note. *N* = Number; SD = Standard deviation. [+] Time between services based upon time actively involved in treatment, so excludes time to first service from detention release. [++] Length of stay refers to only inpatient treatment services. All outpatient sessions and emergency department visits were ≤1 day. * Participants who utilized treatment within 2 years post-detention. Analyses exclude participants with 0 treatment services.

Table 3.26 Frequency of Treatment Services within Two Years Post-Detention: Demographic Groups

Treatment Variables	Total Sample *N* = 3269*		Gender			Race			Age Cohorts			
			Females *n* = 844	Males *n* = 2212	--	White *n* = 1102	Black *n* = 1714	--	Younger *n* = 895	Mid-Age *n* = 1344	Older *n* = 817	--
	Mean (SD)	Range	Mean (SD)	Mean (SD)	*t*-test, *p*-value	Mean (SD)	Mean (SD)	*t*-test, *p*-value	Mean (SD)	Mean (SD)	Mean (SD)	*F*-test, *p*-value
Time Between Treatment Services (in Days)+												
Outpatient	33.92 (54.93)	1.0 – 680.0	35.54 (58.25)	32.56 (52.08)	1.72, *p* = .191	35.12 (60.72)	32.32 (50.32)	1.61, *p* = .205	29.35 (44.81)[a]	35.51 (57.67)[b]	34.62 (56.66)[b]	3.51, *p* = .030
Mental Health	33.56 (53.27)	1.0 – 680.0	35.64 (59.97)	32.72 (50.00)	1.58, *p* = .209	36.12 (60.88)	32.07 (49.24)	3.07, *p* = .08	30.67 (48.84)[a]	33.53 (51.55)[a]	38.02 (61.59)[b]	3.25, *p* = .039
Substance-Related	34.43 (56.56)	1.0 – 593.0	36.11 (40.13)	33.37 (57.55)	0.12, *p* = .726	28.80 (35.59)	37.19 (65.21)	6.51, *p* = .012	24.57 (16.34)[a]	38.76 (61.14)[b]	31.00 (54.37)[c]	1.45, *p* = .237
Either/Both	38.03 (72.61)	2.0 – 471.0	60.68 (114.16)	30.72 (53.48)	5.20, *p* = .024	52.55 (105.30)	24.06 (17.53)	1.79, *p* = .183	24.61 (21.07)[a]	37.29 (72.43)[b]	37.79 (73.96)[b]	0.31, *p* = .736
Non-Outpatient	117.69 (128.13)	0.0 – 586.0	150.44 (136.20)	96.14 (118.57)	5.62, *p* = .019	115.27 (136.72)	121.25 (121.96)	0.07, *p* = .799	87.79 (105.98)[a]	116.52 (126.23)[b]	167.97 (151.33)[c]	3.52, *p* = .033
Length of Stay (in Days)++												
Inpatient Stays	11.37 (24.36)	0.0 – 290.0	11.12 (24.92)	11.53 (24.96)	0.03, *p* = .88	12.32 (27.85)	10.25 (22.61)	0.58, *p* = .447	9.58 (16.61)[a]	10.26 (15.31)[a]	15.58 (41.08)[b]	1.85, *p* = .158
Mental Health	12.56 (35.16)	0.0 – 496.0	13.46 (45.03)	12.27 (27.81)	0.08, *p* = .78	13.74 (31.00)	12.16 (42.93)	0.09, *p* = .768	10.24 (17.54)[a]	10.05 (15.73)[a]	22.13 (70.26)[b]	2.83, *p* = .06
Substance-Related	10.37 (17.34)	0.0 – 61.0	2.75 (3.09)	12.00 (18.86)	0.93, *p* = .345	8.40 (18.64)	12.18 (19.13)	0.21, *p* = .652	1.50 (1.29)[a]	15.70 (20.15)[b]	9.33 (17.89)[c]	0.98, *p* = .391
Either/Both	10.73 (24.73)	0.0– 212.0	9.47 (11.71)	10.49 (28.82)	0.03, *p* = .865	7.96 (9.37)	14.21 (37.33)	1.16, *p* = .284	5.55 (3.48)[a]	12.43 (35.78)[b]	8.67 (8.93)[ab]	0.64, *p* = .529

Note. *n* = Number; SD = Standard deviation; *p*-value = Significance level. * Participants who utilized treatment within 2 years post-detention. Analyses exclude participants with 0 treatment services. For age cohorts, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon t-tests between paired cohorts. + Time between services based upon time actively involved in treatment, so excludes time to first service from detention release. ++ Length of stay refers to only inpatient treatment services. All outpatient sessions and emergency department visits were ≤1 day.

Table 3.27 Frequency of Treatment Services within Two Years Post-Detention: Mental Health Groups

	Total Sample N = 3269*		MAYSI-2				Disorder Type				Pre-Detention Treatment		
			No MAYSI-2 n = 1677	Non-Positive Screen n = 366	Positive Screen n = 1013	--	Mental Disorder n = 1504	Substance Disorder n = 164	Comorbid n = 1388	--	No n = 1498	Yes n = 1558	--
Treatment Variables	Mean (SD)	Range	Mean (SD)	Mean (SD)	Mean (SD)	F-test, p-value	Mean (SD)	Mean (SD)	Mean (SD)	F-test, p-value	Mean (SD)	Mean (SD)	t-test, p-value
Time Between Treatment Services (in days)[+]													
Outpatient	33.92 (54.93)	1.0 – 680.0	33.53 (52.65)[a]	33.19 (50.43)[a]	34.38 (58.93)[a]	0.10, p = .906	32.77 (47.67)[a]	27.79 (28.16)[b]	34.80 (62.09)[a]	1.36, p = .256	32.75 (50.96)	34.09 (56.75)	1.25, p = .264
Mental Health	33.56 (53.27)	1.0 – 680.0	32.75 (50.88)[ab]	31.79 (42.37)[a]	35.74 (60.15)[bc]	0.98, p = .375	33.39 (48.92)[a]	0.0 (0.00)[b]	33.93 (59.22)[a]	112.93, p < .001	32.41 (48.13)	34.68 (57.41)	1.14, p = .286
Substance-Related	34.43 (56.56)	1.0 – 593.0	33.20 (444.57)[a]	41.59 (78.61)[b]	31.00 (57.11)[a]	0.77, p = .463	0.0 (0.00)[a]	28.93 (36.96)[b]	37.37 (65.37)[c]	229.49, p < .001	30.37 (36.44)	39.60 (77.12)	2.52, p = .113
Either/Both	38.03 (72.61)	2.06 – 471.0	54.05 (98.58)[a]	29.63 (46.40)[b]	27.11 (49.68)[b]	2.93, p = .056	24.75 (1.00)[a]	0.0 (0.00)[b]	36.15 (69.37)[c]	320.09 p < .001	43.55 (87.53)	30.61 (51.49)	1.59, p = .211
Non-Outpatient	117.69 (128.13)	0.0 – 586.0	106.66 (123.20)[a]	65.62 (51.22)[b]	127.35 (131.71)[a]	0.66, p = .516	113.45 (129.47)[a]	0.0 (0.00)[b]	117.69 (128.13)[a]	583.32, p < .001	86.41 (106.83)	129.74 (135.31)	4.43, p = .037
Length of Stay (in Days)[++]													
Inpatient	11.37 (24.36)	0.0 – 290.0	11.27 (29.74)[a]	13.44 (14.29)[a]	11.28 (16.46)[a]	0.06, p = .94	10.51 (14.46)[a]	22.285 (21.06)[b]	11.52 (29.35)[a]	0.76, p = .471	14.54 (34.11)	8.34 (13.08)	6.39, p = .012
Mental Health	12.56 (35.16)	0.0 – 496.0	13.67 (44.72)[a]	14.77 (16.35)[a]	11.13 (17.14)[b]	0.18, p = .834	10.51 (14.46)[a]	0.0 (0.00)[b]	14.64 (47.09)[c]	20.04, p < .001	18.10 (52.69)	8.36 (13.11)	5.89, p = .016
Substance-Related	10.37 (17.34)	0.0 – 61.0	7.09 (17.67)[a]	1.50 (0.71)[b]	14.92 (18.52)[c]	0.86, p = .435	0.0 (0.00)[a]	22.29 (21.06)[b]	6.26 (14.56)[c]	304.38, p < .001	12.51 (33.78)	7.88 (9.82)	0.75, p = .391
Either/Both	10.73 (24.73)	0.0– 212.0	6.95 (6.01)[a]	15.75 (9.53)[b]	13.36 (36.52)[b]	0.75, p = .477	0.0 (0.00)[a]	0.0 (0.00)[a]	10.14 (24.46)[b]	--	12.36 (17.91)	7.86 (16.58)	0.48, p = .496

Note. n = Number; SD = Standard deviation; p-value = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. * Participants who utilized treatment within 2 years post-detention. Analyses exclude participants with 0 treatment services. For MAYSI-2 groups and disorder groups, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon t-tests between paired groups. [+] Time between services based upon time actively involved in treatment, so excludes time to first service from detention release. [++] Length of stay refers to only inpatient treatment services. All outpatient sessions and emergency department visits were ≤1 day.

Table 3.28 Frequency of Treatment Services within Two Years Post-Detention: Criminal History Groups

Treatment Variables	Total Sample N = 3269* Mean (SD)	Range	Violent Offender No n = 1836 Mean (SD)	Violent Offender Yes n = 1220 Mean (SD)	-- t-test, p-value	Recidivist[a] No n = 1449 Mean (SD)	Recidivist[a] Yes n = 1607 Mean (SD)	-- t-test, p-value	Re-Detained/Incarcerated[b] No n = 1159 Mean (SD)	Re-Detained/Incarcerated[b] Yes n = 1897 Mean (SD)	-- t-test, p-value
Time Between Treatment Services (in days)[+]											
Outpatient	33.92 (54.93)	1.0 – 680.0	32.63 (55.85)	34.06 (53.35)	0.28, p = .599	34.74 (58.83)	32.21 (49.00)	1.53, p = .217	35.61 (62.304)	32.17 (48.50)	2.59, p = .108
Mental Health	33.56 (53.27)	1.0 – 680.0	33.56 (55.49)	33.66 (50.02)	0.01, p = .961	35.56 (58.35)	31.83 (48.05)	3.05, p = .081	36.38 (60.38)	31.93 (48.33)	4.08, p = .043
Substance-Related	34.43 (56.56)	1.0 – 593.0	31.51 (50.70)	36.71 (65.43)	1.71, p = .192	30.01 (51.92)	37.52 (58.74)	1.79, p = .182	30.01 (53.23)	36.35 (57.06)	1.22, p = .270
Either/Both	38.03 (72.61)	2.06 – 471.0	36.23 (71.01)	35.77 (65.23)	0.002, p = .968	48.05 (94.66)	28.05 (43.27)	3.75, p = .054	46.16 (94.06)	30.20 (48.65)	2.29, p = .131
Non-Outpatient	117.69 (128.13)	0.0 – 586.0	119.02 (133.00)	115.98 (122.76)	0.02, p = .896	140.72 (147.70)	98.67 (106.78)	13.43, p < .001	96.67 (115.89)	159.73 (141.95)	7.11, p < .001
Length of Stay (in Days)[++]											
Inpatient	11.37 (24.36)	0.0 – 290.0	11.04 (23.45)	11.86 (25.67)	0.10, p = .753	11.89 (31.96)	10.95 (17.42)	0.23, p = .716	13.36 (35.28)	10.23 (16.36)	1.37, p = .243
Mental Health	12.56 (35.16)	0.0 – 496.0	12.03 (27.84)	13.78 (45.09)	0.17, p = .68	14.76 (50.79)	11.26 (18.39)	0.69, p = .407	14.73 (55.82)	10.57 (17.27)	2.00, p = .158
Substance-Related	10.37 (17.34)	0.0 – 61.0	6.37 (9.71)	22.0 (28.41)	4.58, p = .043	10.0 (17.28)	11.25 (18.82)	0.03, p = .861	10.27 (18.42)	10.80 (17.71)	0.01, p = .942
Either/Both	10.73 (24.73)	0.0– 212.0	11.66 (28.32)	6.23 (7.72)	0.78, p = .380	7.38 (7.83)	12.08 (32.42)	0.59, p = .446	8.43 (8.32)	11.086 (29.88)	0.21, p = .648

Note. n = Number; SD = Standard deviation; p-value = Significance level. * Participants who utilized treatment within two years post-detention. Analyses exclude participants with 0 treatment services. [a] Recidivism within two years post-detention. [b] Re-detained in detention center or incarcerated in prison within two years post-detention. [+] Time between services based upon time actively involved in treatment, so excludes time to first service from detention release. [++] Length of stay refers to only inpatient treatment services. All outpatient sessions and emergency department visits were ≤1 day.

Table 3.29 Frequency of Treatment Services within Two Years Post-Detention: Cohort One versus Cohort Two

Treatment Variables	Total Sample *N* = 3269*		Cohort Groups: Cohort One *n* = 1935		Cohort Two *n* = 1334		--
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	*t*-test, *p*-value
Time Between Treatment Services (in Days)[+]							
Outpatient	33.92 (54.93)	1.0 – 680.0	33.14 (55.02)	1.0 – 680.0	33.74 (52.17)	1.0 – 607.0	1.21, *p* = .298
Mental Health	33.56 (53.27)	1.0 – 680.0	32.40 (52.07)	1.0 – 680.0	33.77 (49.33)	1.0 – 607.0	0.38, *p* = .534
Substance-Related	34.43 (56.56)	1.0 – 593.0	30.71 (38.59)	1.0 – 329.0	36.19 (65.23)	2.0 – 593.0	0.92, *p* = .338
Either/Both	38.03 (72.61)	2.0 – 471.0	64.14 (131.84)	2.0 – 388.0	29.10 (48.36)	2.0 – 471.0	5.73, *p* = .018
Non-Outpatient	117.69 (128.13)	0.0 – 586.0	104.59 (128.05)	0.0 – 586.0	129.81 (123.97)	2.0 – 585.0	1.30, *p* = .256
Length of Stay (in Days)[++]							
Inpatient Stays	11.37 (24.36)	0.0 – 290.0	11.38 (28.29)	0.0 – 290.0	11.25 (16.92)	0.0 – 91.0	0.00, *p* = .988
Mental Health	12.56 (35.16)	0.0 – 496.0	13.71 (42.29)	0.0 – 496.0	10.54 (16.84)	0.0 – 91.00	0.60, *p* = .438
Substance-Related	10.37 (17.34)	0.0 – 61.0	2.30 (2.36)	0.0 – 7.0	15.12 (20.55)	0.0 – 61.00	3.81, *p* = .062
Either/Both	10.73 (24.73)	0.0 – 212.0	6.87 (5.35)	0.0 – 30.0	14.57 (34.39)	0.0 – 212.0	2.01, *p* = .160

Note. *n* = Number; SD = Standard deviation; *p*-value = Significance level. * Participants who utilized treatment within 2 years post-detention. Analyses exclude participants with 0 treatment services. [+] Time between services based upon time actively involved in treatment, so excludes time to first service from detention release. [++] Length of stay refers to only inpatient treatment services. All outpatient sessions and emergency department visits were ≤1 day.

Table 3.30 Intensity of Treatment Services within Two Years Post-Detention: Treatment Type, Treatment Setting, and User Intensity Level

Treatment Categories	Number (%) *N* = 8915
Treatment Type	--
Only Mental Health Treatment	2084 (23.4%)
Only Substance-Related Treatment	370 (4.2%)
Only Either/Both Treatment	58 (0.7%)
Mental Health and Substance-Related Treatment	319 (3.6%)
Mental Health and Either/Both Treatment	197 (2.2%)
Substance-Related and Either/Both Treatment	41 (0.5%)
All Three Treatment Types	200 (2.2%)
Treatment Setting	--
Only Outpatient Treatment	2554 (28.6%)
Only Non-Outpatient Treatment	70 (0.8%)
Outpatient and Inpatient Treatment	223 (2.5%)
Outpatient and ED Visit	291 (3.3%)
Outpatient, Inpatient, and ED Visit	139 (1.6%)
Number of Treatment Settings	--
One Setting	2614 (29.3%)
Two Settings	516 (5.8%)
Three Settings	139 (1.6%)
Outpatient User Intensity Level	3207 (36.0%)
Non-User	5708 (64.0%)
Low User (1-2 Sessions)	700 (7.9%)
Low-to-Moderate User (3-7 Sessions)	771 (8.6%)
Moderate User (8-12 Sessions)	446 (5.0%)
Moderate-to-High User (13-17 Sessions)	296 (3.3%)
High User (18-22 Sessions)	226 (2.5%)
Extreme User (≥23 Sessions)	830 (9.3%)
Non-Outpatient User Intensity Level	723 (8.13%)
Non-User	8204 (92.0%)
Low User (1 Stay/Visit)	449 (5.0%)
Low-to-Moderate User (2 Stays/Visits)	121 (1.4%)
Moderate User (3-4 Stays/Visits)	75 (0.9%)
High User (5-6 Stay/Visit)	33 (0.4%)
Extreme User (≥7 Stays/Visits)	33 (0.3%)

Note. *N* = Number; % = Percentage; ED = Emergency Department.

Table 3.31 Intensity of Treatment Services within Two Years Post-Detention: Demographic Groups

Treatment Variables	Total Sample	Gender			Race			Age Cohorts			
		Females	Males	--	White	Black	--	Younger	Mid-Age	Older	--
	N (%) N = 8915	N (%) n = 3400	N (%) n = 5515	χ^2, p-value	N (%) n = 3164	N (%) n = 5185	χ^2, p-value	N (%) n = 2285	N (%) n = 3566	N (%) n = 3059	χ^2, p-value
Treatment Type											
Only Mental Health	2084 (23.4%)	666 (19.6%)	1418 (25.7%)	44.03, p < .001	745 (23.5%)	1183 (22.8%)	0.59, p = .229	752 (32.9%)[a]	872 (24.4%)[b]	460 (15.0%)[c]	236.54, p < .001
Only Substance-Related	370 (4.2%)	59 (1.7%)	311 (5.6%)	80.58, p < .001	120 (3.8%)	213 (4.1%)	0.51, p = .257	31 (1.4%)[a]	151 (4.2%)[b]	188 (6.1%)[b]	75.53, p < .001
Only Either/Both	58 (0.7%)	11 (0.3%)	47 (0.9%)	9.10, p = .003	25 (0.8%)	30 (0.6%)	1.34, p = .154	6 (0.3%)[a]	25 (0.7%)[ab]	27 (0.9%)[bc]	8.02, p = .018
Mental Health and Substance-Related	319 (3.6%)	95 (2.8%)	224 (4.1%)	9.79, p = .002	137 (4.3%)	153 (3.0%)	11.15, p < .001	71 (3.1%)[a]	148 (4.1%)[a]	100 (3.3%)[a]	5.70, p = .058
Mental Health and Either/Both	197 (2.2%)	55 (1.6%)	142 (2.6%)	8.92, p = .003	84 (2.7%)	100 (1.9%)	4.81, p = .031	42 (1.8%)[a]	99 (2.8%)[b]	56 (1.8%)[a]	8.79, p = .012
Substance-Related and Either/Both	41 (0.5%)	4 (0.1%)	37 (0.7%)	14.06, p < .001	17 (0.2%)	19 (0.4%)	1.34, p = .162	2 (0.1%)[a]	22 (0.6%)[b]	17 (0.6%)[b]	9.46, p = .106
All Three Types	200 (2.2%)	44 (1.3%)	156 (2.8%)	22.58, p < .001	93 (2.9%)	93 (1.8%)	11.84, p < .001	43 (1.9%)[a]	102 (2.9%)[b]	55 (1.8%)[a]	10.31, p = .006
Treatment Setting											
One Setting (Outpatient)	2547 (28.6%)	656 (25.8%)	1891 (34.3%)	230.75, p < .001	852 (26.9%)	1492 (28.8%)	3.32, p = .036	748 (32.7%)[a]	1105 (31.0%)[a]	694 (22.7%)[b]	81.49, p < .001
One Setting (Non-Outpatient)	67 (0.8%)	21 (0.6%)	46 (0.8%)	1.32, p = .312	43 (1.4%)	19 (0.4%)	26.26, p < .001	12 (0.5%)[a]	28 (0.8%)[a]	27 (0.9%)[a]	2.33, p = .312
Two Settings	516 (5.8%)	208 (6.1%)	308 (5.6%)	1.10, p = .304	247 (7.8%)	230 (4.4%)	41.44, p < .001	145 (6.3%)[a]	226 (6.3%)[a]	145 (4.7%)[b]	9.41, p = .01
Three Settings	139 (1.6%)	49 (1.4%)	90 (1.6%)	0.50, p = .538	78 (2.5%)	52 (1.0%)	27.41, p < .001	43 (1.9%)[a]	61 (1.7%)[a]	35 (1.1%)[a]	5.50, p = .064
Outpatient User Intensity Level											
1-2 Sessions	700 (7.9%)	192 (5.6%)	508 (9.2%)	36.92, p < .001	250 (7.9%)	383 (7.4%)	0.74, p = .394	141 (6.2%)[a]	309 (8.7%)[b]	250 (8.2%)[b]	12.64 p = .002

Table 3.31 Continued.

3-7 Sessions	771 (8.6%)	226 (6.6%)	545 (9.9%)	27.86, $p < .001$	279 (8.8%)	429 (8.3%)	0.75, $p = .395$	171 (7.5)^{ac}	346 (9.7%)^{b}	254 (8.3%)^{ab}	9.41, $p = .01$
8-12 Sessions	446 (5.0%)	125 (3.7%)	321 (5.8%)	20.34, $p < .001$	181 (5.7%)	239 (4.6%)	5.08, $p = .024$	115 (5.0%)^{a}	200 (5.6%)^{a}	131 (4.3%)^{b}	6.08, $p = .048$
13-17 Sessions	296 (3.3%)	80 (2.4%)	216 (3.9%)	16.02, $p < .001$	140 (4.42%	154 (3.0%)	2.30, $p = .349$	81 (3.5%)^{ab}	141 (4.0%)^{b}	74 (2.4%)^{ac}	12.54 $p = .002$
18-22 Sessions	226 (2.5%)	63 (1.9%)	163 (3.0%)	10.35, $p < .001$	75 (2.4%)	124 (2.4%)	0.004, $p = .99$	75 (3.3%)^{a}	105 (2.9%)^{a}	46 (1.5%)^{b}	20.71, $p < .001$
≥23 Sessions	830 (9.3%)	248 (7.3%)	582 (10.6%)	26.45, $p < .001$	323 (10.2%)	462 (8.9%)	3.88, $p = .053$	364 (15.9%)^{a}	318 (8.9%)^{b}	148 (4.8%)^{b}	191.39, $p < .001$
Non-Outpatient User Intensity Level											
1 Stay/Visit	449 (5.0%)	176 (5.2%)	273 (5.0%)	0.23, $p = .654$	216 (6.8%)	194 (3.7%)	40.05, $p < .001$	117 (5.1%)^{a}	202 (5.7%)^{a}	130 (4.2%)^{b}	6.92, $p = .031$
2 Stays/Visits	121 (1.4%)	47 (1.4%)	74 (1.3%)	0.03, $p = .925$	78 (2.5%)	38 (0.7%)	43.04, $p < .001$	35 (1.5%)^{a}	49 (1.4%)^{a}	37 (1.2%)^{a}	1.02, $p = .600$
3-4 Stays/Visits	75 (0.9%)	29 (0.9%)	46 (0.8%)	0.01, $p = .906$	43 (1.4%)	27 (0.5%)	16.61, $p < .001$	19 (0.8%)^{a}	36 (1.0%)^{b}	20 (0.7%)^{a}	2.50, $p = .287$
5-6 Stay/Visit	33 (0.4%)	11 (0.3%)	22 (0.4%)	0.32, $p = .720$	12 (0.4%)	20 (0.4%)	0.002, $p = .998$	12 (0.5%)^{a}	13 (0.4%)^{a}	8 (0.3%)^{b}	2.46, $p = .292$
≥7 Stays/Visits	33 (0.1%)	10 (0.3%)	23 (0.5%)	0.30, $p = .777$	20 (0.6%)	12 (0.3%)	5.43, $p = .040$	14 (0.6%)^{a}	12 (0.03%)^{ab}	7 (0.2%)^{bc}	2.89, $p = .236$

Note. n = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level. For age cohorts, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired cohorts.

Table 3.32 Intensity of Treatment Services within Two Years Post-Detention: Mental Health Groups

		MAYSI-2				Disorder Type				Pre-Detention Treatment		
	Total Sample	No MAYSI-2	Non-Positive Screen	Positive Screen	--	Mental Disorder	Substance Disorder	Comorbid	--	No	Yes	--
Treatment Variables	N (%) N = 8915	N (%) n = 6838	N (%) n = 603	N (%) n = 3164	χ^2, p-value	N (%) n = 3257	N (%) n = 617	N (%) n = 2567	χ^2, p-value	N (%) n = 6838	N (%) n = 2077	χ^2, p-value
Treatment Type												
Only Mental Health	2084 (23.4%)	1362 (19.9%)[a]	191 (31.7%)[b]	531 (36.0%)[b]	200.49, $p < .001$	1609 (49.4%)[a]	0 (0.0%)[b]	475 (18.5%)[c]	2205.86, $p < .001$	1166 (17.1%)	918 (44.2%)	655.44, $p < .001$
Only Substance-Related	370 (4.2%)	212 (3.1%)[a]	50 (8.3%)[b]	108 (7.3%)[b]	82.34, $p < .001$	0 (0.0%)[a]	228 (37.0%)[b]	142 (5.5%)[c]	1929.37, $p < .001$	225 (3.7%)	115 (5.5%)	13.09 $p < .001$
Only Either/Both	58 (0.7%)	26 (0.4%)[a]	4 (0.7%)[a]	28 (1.9%)[b]	43.31, $p < .001$	0 (0.0%)[a]	0 (0.0%)[a]	58 (0.7%)[b]	--	35 (0.5%)	23 (1.1%)	8.74, $p = .005$
Mental Health and Substance-Related	319 (3.6%)	193 (2.8%)[a]	28 (4.6%)[b]	98 (6.6%)[b]	53.58, $p < .001$	0 (0.0%)[a]	0 (0.0%)[a]	319 (12.4%)[b]	--	143 (2.1%)	176 (8.5%)	188.10, $p < .001$
Mental Health and Either/Both	197 (2.2%)	73 (1.1%)[a]	28 (4.6%)[b]	96 (6.5%)[b]	184.11, $p < .001$	5 (0.2%)[a]	0 (0.0%)[a]	192 (7.5%)[b]	463.47, $p < .001$	83 (42.1%)	114 (57.9%)	134.73, $p < .001$
Substance-Related and Either/Both	41 (0.5%)	16 (0.2%)[a]	10 (1.7%)[ab]	15 (1.0%)[bc]	36.55, $p < .001$	0 (0.0%)[a]	0 (0.0%)[a]	41 (1.6%)[b]	--	20 (0.3%)	21 (1.0%)	17.97, $p < .001$
All Three Types	200 (2.2%)	92 (1.3%)[a]	21 (3.5%)[b]	87 (5.9%)[b]	119.34, $p < .001$	0 (0.0%)[a]	0 (0.0%)[a]	200 (7.8%)[b]	--	72 (1.1%)	128 (6.2%)	189.67, $p < .001$
Treatment Setting												
One Setting (Outpatient)	2547 (28.6%)	1551 (22.7%)[a]	296 (29.1%)[b]	700 (47.5%)[c]	498.41, $p < .001$	1403 (43.1%)[a]	191 (31.0%)[b]	953 (37.1%)[c]	1418.44, $p < .001$	1445 (21.1%)	1102 (53.1%)	797.87, $p < .001$
One Setting (Non-Outpatient)	67 (0.8%)	48 (0.7%)[a]	3 (0.5%)[ab]	16 (1.1%)[bc]	0.95, $p = .229$	12 (0.4%)[ac]	16 (2.6%)[b]	39 (1.5%)[ab]	73.48, $p < .001$	42 (0.6%)	25 (1.2%)	7.41, $p = .009$
Two Settings	516 (5.8%)	302 (4.4%)[a]	30 (5.0%)[a]	184 (12.5%)[b]	145.48, $p < .001$	171 (5.2%)[a]	22 (3.6%)[b]	323 (12.6%)[c]	376.55, $p < .001$	239 (2.5%)	277 (13.3%)	282.95, $p < .001$
Three Settings	139 (1.6%)	75 (1.1%)[a]	3 (0.5%)[a]	61 (4.1%)[b]	77.84, $p < .001$	28 (0.9%)[a]	0 (0.0%)[a]	111 (4.3%)[b]	187.19, $p < .001$	51 (0.7%)	88 (4.2%)	126.50, $p < .001$

Table 3.32 Continued.

Outpatient User Intensity Level												
1-2 Sessions	700 (7.9%)	479 (7.0%)[a]	69 (11.4%)[b]	152 (10.3%)[b]	29.85, $p < .001$	373 (11.4%)[a]	98 (15.9%)[b]	229 (8.9%)[a]	327.86, $p < .001$	483 (7.1%)	217 (10.4%)	25.22, $p < .001$
3-7 Sessions	771 (8.6%)	460 (6.7%)[a]	81 (13.4%)[b]	230 (15.6%)[b]	139.68, $p < .001$	388 (11.9%)[ac]	76 (12.3%)[b]	307 (12.0%)[ab]	323.92, $p = .101$	482 (7.0%)	289 (37.5%)	95.04, $p < .001$
8-12 Sessions	446 (5.0%)	274 (4.05%)[a]	44 (7.3%)[a]	128 (8.7%)[b]	62.97, $p < .001$	223 (50.0%)[a]	31 (5.0%)[b]	102 (7.5%)[c]	186.52, $p < .001$	259 (3.8%)	187 (9.0%)	91.19, $p < .001$
13-17 Sessions	296 (3.3%)	174 (2.5%)[a]	30 (5.0%)[ab]	92 (6.2%)[bc]	57.14, $p < .001$	134 (4.1%)[a]	7 (1.1%)[b]	155 (6.0%)[a]	159.51, $p < .001$	151 (2.2%)	145 (7.0%)	113.06, $p < .001$
18-22 Sessions	226 (2.5%)	136 (2.0%)[a]	24 (4.0%)[ab]	66 (4.5%)[bc]	35.86, $p < .001$	96 (2.9%)[ab]	9 (1.5%)[a]	121 (4.7%)[bc]	118.72, $p < .001$	93 (41.2%)	133 (6.4%)	164.01, $p < .001$
≥23 Sessions	830 (9.3%)	451 (6.6%)[a]	84 (13.9%)[a]	295 (20.0%)[c]	274.92, $p < .001$	400 (12.3%)[a]	7 (1.1%)[b]	423 (16.5%)[c]	492.73, $p < .001$	306 (4.5%)	524 (25.2%)	812.68, $p < .001$
Non-Outpatient User Intensity Level												
1 Stay/Visit	449 (5.0%)	262 (3.8%)[a]	30 (5.0%)[a]	157 (10.7%)[b]	117.92, $p < .001$	240 (4.3%)[a]	37 (6.0%)[a]	272 (10.6%)[b]	301.92, $p < .001$	215 (3.1%)	234 (11.3%)	219.73, $p < .001$
2 Stays/Visits	121 (1.4%)	69 (1.0%)[a]	3 (0.5%)[a]	49 (3.3%)[b]	52.12, $p < .001$	33 (1.0%)[a]	1 (0.2%)[a]	87 (3.4%)[b]	122.65, $p < .001$	56 (0.8%)	65 (3.1%)	63.53, $p < .001$
3-4 Stays/Visits	75 (0.9%)	46 (0.7%)[ac]	1 (0.2%)[ab]	28 (1.9%)[c]	25.42, $p < .001$	18 (0.6%)[a]	9 (1.5%)[ab]	57 (2.2%)[bc]	88.01, $p < .001$	26 (0.4%)	49 (2.4%)	74.79, $p < .001$
5-6 Stay/Visit	33 (0.4%)	16 (0.2%)[a]	2 (0.3%)[a]	15 (1.0%)[b]	20.22, $p < .001$	7 (0.2%)[a]	0 (0.0%)[a]	26 (1.0%)[b]	42.36, $p < .001$	12 (0.2%)	21 (1.0%)	30.16, $p < .001$
≥7 Stays/Visits	33 (0.3%)	22 (0.3%)[ab]	0 (0.0%)[ac]	11 (0.7%)[b]	3.67, $p = .159$	8 (0.3%)[a]	9 (1.5%)[bc]	25 (0.9%)[ba]	20.20, $p < .001$	16 (0.2%)	17 (0.8%)	6.80, $p = .016$

Note. n = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. For MAYSI-2 groups and disorder groups, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired groups.

Table 3.33 Intensity of Treatment Services within Two Years Post-Detention: Criminal History Groups

Treatment Variables	Total Sample	Violent Offender			Recidivist[+]			Re-Detained/Incarcerated[++]		
		No	Yes	--	No	Yes	--	No	Yes	--
	N (%) *N* = 8915	N (%) *n* = 5661	N (%) *n* = 3254	χ^2, *p*-value	N (%) *n* = 5447	N (%) *n* = 3468	χ^2, *p*-value	N (%) *n* = 4010	N (%) *n* = 4905	χ^2, *p*-value
Treatment Type										
Only Mental Health	2084 (23.4%)	1147 (20.3)	937 (28.8%)	84.01, $p < .001$	1080 (19.8%)	1004 (29.0%)	98.46, $p < .001$	818 (20.4%)	1266 (25.8%)	36.07, $p < .001$
Only Substance-Related	370 (4.2%)	259 (4.6%)	111 (3.4%)	7.04, $p = .004$	187 (3.4%)	183 (5.3%)	18.11, $p < .001$	149 (3.7%)	221 (4.5%)	3.46, $p = .035$
Only Either/Both	58 (0.7%)	35 (0.6%)	23 (0.7%)	0.25, $p = .682$	32 (0.6%)	26 (0.7%)	0.86, $p = 348$	27 (0.7%)	31 (0.6%)	0.06, $p = .895$
Mental Health and Substance-Related	319 (3.6%)	223 (3.9%)	96 (3.0%)	5.85, $p = .023$	103 (1.9%)	216 (6.2%)	115.54, $p < .001$	71 (1.8%)	248 (5.1%)	69.03, $p < .001$
Mental Health and Either/Both	197 (2.2%)	125 (2.2%)	72 (2.2%)	0.001, $p = .99$	75 (1.4%)	122 (3.5%)	44.95, $p < .001$	56 (1.4%)	141 (2.9%)	22.30, $p = .011$
Substance-Related and Either/Both	41 (0.5%)	31 (0.5%)	10 (0.3%)	2.61, $p = .142$	19 (0.3%)	22 (0.6%)	3.77, $p = .055$	14 (0.3%)	27 (0.6%)	1.33, $p = .023$
All Three Types	200 (2.2%)	148 (2.6%)	52 (1.6%)	9.73, $p = .002$	67 (1.2%)	133 (3.8%)	65.57, $p < .001$	49 (1.2%)	151 (3.1%)	34.68, $p < .001$
Treatment Setting										
One Setting (Outpatient)	2547 (28.6%)	1523 (26.9%)	1024 (31.5%)	21.29, $p < .001$	1266 (23.2%)	1281 (37.0%)	195.53, $p < .001$	948 (23.7%)	1599 (32.6%)	86.26, $p < .001$
One Setting (Non-Outpatient)	67 (0.8%)	48 (0.8%)	19 (0.6%)	1.93, $p = .202$	29 (0.5%)	38 (1.1%)	9.05, $p = .004$	22 (0.5%)	45 (0.9%)	4.02, $p = .049$
Two Settings	516 (5.8%)	311 (5.5%)	205 (6.3%)	2.46, $p = .120$	213 (3.9%)	303 (8.7%)	90.54, $p < .001$	177 (4.4%)	339 (6.9%)	25.23, $p < .001$

Table 3.33 Continued

Three Settings	139 (1.6%)	85 (1.5%)	54 (1.7%)	0.34, p = .594	56 (1.0%)	83 (2.4%)	25.73, p < .001	38 (0.9%)	101 (2.1%)	17.76, p < .001
Outpatient User Intensity Level										
1-2 Sessions	700 (7.9%)	418 (7.4%)	282 (8.7%)	4.69, p = .033	392 (7.2%)	308 (8.9%)	8.311, p = .004	291 (7.3%)	409 (8.3%)	3.57, p = .063
3-7 Sessions	771 (8.6%)	475 (8.4%)	296 (9.1%)	1.20, p = .257	385 (7.1%)	386 (11.1%)	44.26, p < .001	294 (7.3%)	S477 (9.7%)	15.99, p < .001
8-12 Sessions	446 (5.0%)	279 (4.9%)	167 (5.1%)	0.10, p = .687	215 (3.9%)	231 (6.7%)	32.84, p < .001	162 (4.0%)	284 (5.8%)	14.22, p < .001
13-17 Sessions	296 (3.3%)	193 (3.4%)	103 (3.2%)	0.38, p = .581	134 (2.5%)	162 (4.7%)	32.28, p < .001	108 (2.7%)	188 (3.8%)	8.92, p = .003
18-22 Sessions	226 (2.5%)	142 (2.5%)	84 (2.6%)	0.05, p = .834	93 (1.7%)	133 (3.8%)	38.82, p < .001	72 (1.8%)	154 (3.1%)	16.11, p < .001
≥23 Sessions	830 (9.3%)	461 (8.1%)	369 (11.3%)	25.00, p < .001	344 (6.3%)	486 (14.0%)	148.73, p < .001	257 (6.4%)	573 (11.7%)	72.65, p < .001
Non-Outpatient User Intensity Level										
1 Stay/Visit	449 (5.0%)	276 (4.9%)	173 (5.3%)	0.84, p = 365	187 (3.4%)	262 (7.6%)	75.264, p < .001	156 (3.9%)	293 (5.9%)	20.02, p < .001
2 Stays/Visits	121 (1.4%)	78 (1.4%)	43 (1.3%)	0.05, p = .85	46 (0.8%)	75 (2.2%)	27.50, p < .001	27 (0.7%)	94 (1.9%)	25.47, p < .001
3-4 Stays/Visits	75 (0.9%)	45 (0.8%)	30 (0.9%)	0.40, p = .548	32 (0.6%)	43 (1.2%)	10.81, p < .001	27 (0.7%)	48 (1.0%)	2.47, p = .130
5-6 Stay/Visit	33 (0.4%)	24 (0.4%)	9 (0.3%)	1.21, p = .365	10 (0.2%)	23 (0.7%)	13.22, p < .001	8 (0.2%)	25 (0.5%)	5.76, p = .021
≥7 Stays/Visits	33 (0.3%)	17 (0.3%)	16 (0.5%)	0.18, p = .779	17 (0.3%)	16 (0.4%)	0.001, p = .999	12 (0.3%)	21 (0.5%)	0.22, p = .783

Note. n = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level. $^{+}$ Recidivism within 2 years post-detention. $^{++}$ Re-detained in detention center or incarcerated in prison within 2 years post-detention.

Table 3.34 Intensity of Treatment Services within Two Years Post-Detention: Cohort One versus Cohort Two

		Cohort Groups		
	Total Sample 1998-2011	Cohort One 1998-2005	Cohort Two 2006-2011	--
Treatment Variables	Number (%) N = 8915	Number (%) n = 6574	Number (%) n = 2341	χ^2, p-value
Treatment Type				
Only Mental Health	2084 (23.4%)	1354 (20.6%)	730 (31.2%)	106.84, $p < .001$
Only Substance-Related	370 (4.2%)	187 (2.8%)	183 (7.8%)	197.30, $p < .001$
Only Either/Both	58 (0.7%)	23 (0.3%)	35 (1.5%)	35.08, $p < .001$
MH and S-R	319 (3.6%)	191 (2.9%)	128 (5.5%)	32.58, $p < .001$
MH and E/B	197 (2.2%)	69 (1.0%)	128 (5.5)	155.93, $p < .001$
S-R and E/B	41 (0.5%)	14 (0.2%)	27 (1.2%)	33.34, $p < .001$
All Three Types	200 (2.2%)	96 (1.5%)	104 (4.4%)	70.01, $p < .001$
Treatment Setting				
One Setting – Outpatient	2547 (28.6%)	1518 (23.1%)	1029 (44.0%)	379.30, $p < .001$
One Setting – Non-Outpatient	67 (0.8%)	41 (0.7%)	26 (1.0%)	4.32, $p = .032$
Two Settings	516 (5.8%)	305 (4.6%)	211 (9.0%)	60.90, $p < .001$
Three Settings	139 (1.6%)	71 (1.08%)	68 (2.9%)	37.59, $p < .001$
Outpatient User Intensity Level				
1-2 Sessions	700 (7.9%)	454 (6.9%)	246 (10.5%)	30.96, $p < .001$
3-7 Sessions	771 (8.6%)	437 (6.6%)	334 (14.3%)	126.87, $p < .001$
8-12 Sessions	446 (5.0%)	265 (4.0%)	181 (7.7%)	49.74, $p < .001$
13-17 Sessions	296 (3.3%)	168 (2.6%)	128 (5.5%)	45.61, $p < .001$
18-22 Sessions	226 (2.5%)	133 (2.0%)	93 (4.0%)	26.55, $p < .001$
≥23 Sessions	830 (9.3%)	478 (7.3%)	352 (15.0%)	123.28, $p < .001$
Non-Outpatient User Intensity Level				
1 Stay/Visit	449 (5.0%)	267 (4.1%)	182 (7.8%)	49.76, $p < .001$
2 Stays/Visits	121 (1.4%)	65 (1.0%)	56 (2.4%)	23.40, $p < .001$
3-4 Stays/Visits	75 (0.9%)	42 (0.6%)	33 (1.4%)	12.29, $p = .001$
5-6 Stay/Visit	33 (0.4%)	18 (0.3%)	15 (0.6%)	6.30, $p = .017$
≥7 Stays/Visits	33 (0.3%)	19 (0.4%)	14 (0.6%)	5.85, $p = .022$

Note. n = Number; % = Percentage. χ^2 = 2 x 2 chi-square test; p-value = Significance level; MH = Mental Health; S-R = Substance-Related; E/B = Either/Both.

Table 3.35 Outpatient Treatment Dropouts and Treatment Gaps within Two Years Post-Detention

Treatment Variables	Number (%) *N* = 3207*
Treatment Dropout within 1-3 Sessions	721 (22.5%)
Mental Health (*n* = 2751)	512 (16.0%)
Substance-Related (*n* = 833)	160 (5.0%)
Either/Both (*n* = 445)	48 (1.5%)
Dropout after 1 Session	342 (10.7%)
Mental Health	243 (7.6%)
Substance-Related	74 (2.3%)
Either/Both	24 (0.7%)
Dropout after 2 Sessions	230 (7.2%)
Mental Health	163 (5.1%)
Substance-Related	51 (1.6%)
Either/Both	16 (0.5%)
Dropout after 3 Sessions	149 (4.6%)
Mental Health	106 (3.3%)
Substance-Related	35 (1.1%)
Either/Both	8 (0.2%)
Reasons for Dropout[a]	*n* = 721
Detention/Prison	110 (16.4%)
Inpatient Stay	4 (0.6%)
No Clear Reason	605 (84.2%)
Gaps between Outpatient Sessions	*N* = 2789[b]
No gaps	1656 (59.4%)
Gap(s) between Sessions	1133 (40.6%)
Treatment Type for Gap(s)	
Mental Health	968 (34.7%)
Substance-Related	112 (3.9%)
Either/Both	52 (1.9%)
Number of Gaps	
1 Gap	700 (25.1%)
2-3 Gaps	262 (9.4%)
≥4 Gaps	71 (2.6%)
Reasons for Gaps[c]	*n* = 1133
Detention/Prison	130 (11.5%)
Inpatient Stay	38 (3.6%)
No Clear Reason	965 (85.2%)

Note. *N* = Number; % = Percentage. * Participants who utilized outpatient treatment within two years post-detention. [a] Percentages calculated out of total number of dropouts (*n* = 721). [b] Participants with ≥2 outpatient sessions within 2 years post-detention. A total of 419 participants obtained only one outpatient session, so not included in analyses for gaps between outpatient sessions. [c] Percentages calculated out of total number of participants with ≥1 gaps (*n* = 1133).

Table 3.36 Outpatient Treatment Dropouts and Treatment Gaps within Two Years Post-Detention: Demographic Groups

	Total Sample	Gender			Race			Age Cohorts			
		Females	Males	--	White	Black	--	Younger	Mid-Age	Older	--
Treatment Variables	N (%) N = 3207[+]	N (%) n = 918	N (%) n = 2283	χ^2, p-value	N (%) n = 1177	N (%) n = 1772	χ^2, p-value	N (%) n = 935	N (%) n = 1395	N (%) n = 871	χ^2, p-value
Dropouts from Outpatient Treatment											
Outpatient Dropouts	721 (22.5%)	197 (21.5%)	524 (23.0%)	0.74 p = .209	227 (19.3%)	425 (23.9%)	8.89, p = .003	112 (12.0%)[a]	323 (23.1%)[b]	286 (32.8%)[c]	113.15, p < .001
Detention/ Prison*	110 (16.4%)	22 (11.2%)	88 (1.6%)	15.53, p < .001	41 (1.8%)	62 (14.6%)	0.16, p = .684	37 (33.03)[a]	44 (13.6%)[b]	29 (10.2%)[b]	4.82, p = .09
Inpatient Stay*	4 (0.6%)	4 (2.0%)	0 (0.0%)	6.49, p = .021	1 (0.4%)	3 (0.7%)	0.28, p = .512	1 (0.1%)[a]	2 (1.8%)[b]	1 (0.3%)[a]	0.20, p = .904
No Clear Reason*	605 (84.0%)	171 (86.8%)	436 (83.2%)	1.02, p = .322	185 (81.5%)	360 (84.7%)	8.91, p = .003	74 (66.1%)[a]	277 (85.7%)[b]	256 (89.5%)[b]	115.44, p = .007
Gaps between Outpatient Sessions											
	N (%) N = 2789[++]	N (%) n = 808	N (%) n = 2040	χ^2, p-value	N (%) n = 1078	N (%) n = 1556	χ^2, p-value	N (%) n = 855	N (%) n = 1244	N (%) n = 749	χ^2, p-value
Outpatient Gaps[+]	1113 (40.6%)	330 (40.8%)	803 (39.4%)	0.66, p = .417	425 (39.4%)	615 (39.5%)	0.13, p = .377	402 (47.1%)[a]	476 (38.7%)[b]	255 (34.1%)[b]	25.17, p < .001
Detention/ Prison**	130 (11.5%)	34 (10.3%)	96 (2.0%)	0.40, p = .30	42 (9.9%)	74 (12.0%)	0.68, p = .234	43 (10.7%)[ac]	67 (14.1%)[ab]	20 (7.8%)[c]	9.59, p = .008
Inpatient Stay**	38 (33.6%)	19 (5.7%)	19 (2.4%)	2.28, p = .091	16 (38.1%)	17 (22.9%)	1.68, p = .141	13 (30.2%)[a]	16 (23.9%)[b]	9 (45.0%)[c]	2.39, p = .303
No Clear Reason**	965 (85.2%)	277 (83.9%)	688 (85.7%)	0.13, p = .378	367 (52.0%)	524 (65.0%)	0.31, p = .303	346 (57.1%)[a]	393 (82.6%)[b]	226 (88.6%)[b]	19.93, p < .001

Note. N = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = significance level. [+] Participants who utilized outpatient treatment within Two Years of detention release. [++] Participants with ≥2 outpatient sessions within 2 years post-detention.* Percentages calculated out of total number of dropouts (n = 721). ** Percentages calculated out of total number of participants with ≥1 gaps (n = 1133). For age cohorts, different superscripts indicate significant differences (p ≤ .01) and matching superscripts indicate non-significant differences (p > .01) based upon 2 x 2 chi-square tests between paired cohorts.

Table 3.37 Outpatient Treatment Dropouts and Treatment Gaps within Two Years Post-Detention: Mental Health Groups

		MAYSI-2				Disorder Type				Pre-Detention Treatment		
	Total Sample	No MAYSI-2	Non-Positive Screen	Positive Screen	--	Mental Disorder	Substance Disorder	Comorbid	--	No	Yes	--
Treatment Variables	N (%) N = 3207[+]	N (%) n = 1934	N (%) n = 329	N (%) n = 944	χ^2, p-value	N (%) n = 1606	N (%) n = 214	N (%) n = 1387	χ^2, p-value	N (%) n = 1728	N (%) n = 1479	χ^2, p-value
Dropouts from Outpatient Treatment												
Outpatient Dropouts	721 (22.5%)	460 (23.8%)[a]	73 (22.2%)[ab]	188 (19.9%)[bc]	5.46, p = .065	402 (25.0%)[a]	102 (47.7%)[b]	217 (15.7%)[c]	120.83, p < .001	474 (27.2%)	247 (16.8%)	49.18, p < .001
Detention/ Prison*	110 (16.4%)	67 (14.6%)[a]	10 (13.7%)[a]	33 (17.5%)[b]	16.73, p < .001	47 (11.7%)[a]	5 (4.9%)[b]	44 (20.3%)[c]	15.96, p < .001	75 (15.8%)	35 (14.2%)	4.53, p = .04
Inpatient Stay*	4 (0.6%)	4 (0.8%)[b]	0 (0.0%)[a]	0 (0.0%)[a]	1.22, p = .545	3 (0.18%)[a]	0 (0.0%)[a]	1 (0.5%)[b]	3.02, p = .388	3 (0.2%)	1 (0.1%)	0.01, p = .654
No Clear Reason*	605 (84.0%)	389 (84.6%)[ab]	63 (86.3%)[a]	155 (82.5%)[bc]	3.21, p = .201	352 (87.6%)[ab]	97 (95.1%)[b]	172 (79.3%)[ac]	123.46, p < .001	396 (83.5%)	211 (85.4%)	40.77, p < .001
Gaps between Outpatient Sessions												
	N (%) N = 2789[++]	N (%) n = 1685	N (%) n = 290	N (%) n = 873	χ^2, p-value	N (%) n = 1387	N (%) n = 170	N (%) n = 1291	χ^2, p-value	N (%) n = 1485	N (%) n = 1363	χ^2, p-value
Outpatient Gaps[+]	1113 (40.6%)	662 (39.3%)[a]	119 (41.0%)[a]	352 (40.3%)[a]	0.11, p = .946	546 (39.4%)[a]	41 (24.1%)[b]	546 (42.3%)[a]	19.48, p < .001	497 (33.5%)	636 (46.7%)	46.51, p < .001
Detention/ Prison**	130 (11.5%)	59 (8.9%)[a]	21 (17.7%)[b]	50 (14.2%)[c]	13.36, p < .001	48 (8.8%)[a]	4 (9.8%)[a]	78 (14.3%)[b]	16.12, p < .001	53 (10.5%)	77 (12.1%)	9.95, p = .002
Inpatient Stay**	38 (33.6%)	24 (3.7%)[a]	2 (1.7%)[b]	12 (3.4%)[a]	6.26, p = .044	11 (2.0%)[a]	0 (0.0%)[b]	27 (5.0%)[c]	37.50, p < .001	20 (4.2%)	18 (2.8%)	12.37, p < .001
No Clear Reason**	965 (85.2%)	579 (87.5%)[a]	96 (80.7%)[b]	290 (82.4%)[a]	0.94, p = .626	487 (89.2%)[a]	37 (90.2%)[a]	441 (80.7%)[b]	9.26, p = .010	424 (85.3%)	541 (85.1%)	35.30, p < .001

Note. N = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.
[+] Participants who utilized outpatient treatment within 2 years of detention release. [++] Participants with ≥2 outpatient sessions within 2 years post-detention.
* Percentages calculated out of total number of dropouts (n = 721). ** Percentages calculated out of total number of participants with ≥1 gaps (n = 1133). For MAYSI-2 and disorder type, different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired groups.

Table 3.38 Outpatient Treatment Dropouts and Treatment Gaps within Two Years Post-Detention: Criminal History Groups

Treatment Variables	Total Sample N (%) $N = 3207^{+}$	Violent Offender[+] No N (%) $n = 1918$	Violent Offender[+] Yes N (%) $n = 1289$	Violent Offender[+] -- χ^2, p-value	Recidivist[a] No N (%) $n = 1537$	Recidivist[a] Yes N (%) $n = 1670$	Recidivist[a] -- χ^2, p-value	Re-Detained/Incarcerated[b] No N (%) $n = 1163$	Re-Detained/Incarcerated[b] Yes N (%) $n = 2044$	Re-Detained/Incarcerated[b] -- χ^2, p-value
Dropouts from Outpatient Treatment										
Outpatient Dropouts	721 (22.5%)	458 (23.9%)	263 (20.4%)	5.26, $p = .022$	401 (26.1%)	320 (19.2%)	22.04, $p < .001$	308 (26.5%)	413 (20.2%)	16.61, $p < .001$
Detention/ Prison*	110 (16.4%)	76 (16.6%)	34 (12.9%)	1.50, $p = .233$	36 (8.9%)	74 (23.1%)	37.72, $p < .001$	18 (5.8%)	92 (22.3%)	36.85, $p < .001$
Inpatient Stay*	4 (0.6%)	0 (0.0%)	3 (1.2%)	2.56, $p = .141$	1 (0.2%)	3 (0.9%)	0.21, $p = .645$	2 (0.6%)	2 (0.5%)	0.04, $p = .609$
No Clear Reason*	605 (84.0%)	382 (83.4%)	226 (85.9%)	5.26, $p = .024$	364 (90.8%)	243 (75.9%)	26.93, $p < .001$	288 (93.5%)	319 (77.2%)	20.25, $p < .001$
Gaps between Outpatient Sessions										
Outpatient Gaps[+]	$N = 2789^{++}$ 1113 (40.6%)	N (%) $n = 1474$ 656 (4.5%)	N (%) $n = 1125$ 447 (39.7%)	χ^2, p-value 4.49, $p = .019$	N (%) $n = 1330$ 520 (39.1%)	N (%) $n = 1518$ 613 (40.4%)	χ^2, p-value 0.61, $p = .228$	N (%) $n = 1016$ 380 (32.7%)	N (%) $n = 1832$ 753 (36.8%)	χ^2, p-value 3.43, $p = .035$
Detention/ Prison**	130 (11.5%)	89 (13.6%)	41 (9.2%)	4.21, $p = .024$	27 (5.2%)	103 (16.8%)	40.00, $p < .001$	0 (0.0%)	130 (17.2%)	77.16, $p < .001$
Inpatient Stay**	38 (33.6%)	22 (3.4%)	16 (3.1%)	0.52, $p = .288$	18 (3.5%)	20 (3.3%)	3.03, $p = .059$	14 (3.7%)	24 (3.2%)	1.02, $p = .199$
No Clear Reason**	965 (85.2%)	545 (83.1%)	420 (93.9%)	9.88, $p = .003$	475 (91.4%)	490 (79.9%)	3.51, $p = .033$	366 (96.3%)	599 (79.5%)	3.58, $p = .032$

Note. N = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level. [+] Participants who utilized outpatient treatment within 2 years of detention release. [++] Participants with ≥2 outpatient sessions within 2 years post-detention [a] Recidivism within 2 years post-detention. [b] Re-detained in detention center or incarcerated in prison within 2 years post-detention. * Percentages calculated out of total number of dropouts (n = 721). ** Percentages calculated out of total number of participants with ≥1 gaps (n = 1133).

Table 3.39 Outpatient Treatment Dropouts and Treatment Gaps within Two Years Post-Detention: Cohort One versus Cohort Two

		Cohort Groups		
	Total Sample	Cohort One	Cohort Two	--
Treatment Variables	Number (%) $N = 3207^{+}$	Number (%) $n = 1900$	Number (%) $n = 1307$	χ^2, p-value
Dropout from Outpatient	721 (22.5%)	429 (22.6%)	291 (22.3%)	0.06, $p = .830$
Mental Health	512 (16.0%)	322 (16.9%)	190 (14.5%)	0.01, $p = .959$
Substance-Related	160 (5.0%)	80 (4.2%)	80 (6.1%)	0.21, $p = .694$
Either/Both	48 (1.5%)	27 (1.4%)	21 (1.6%)	9.55, $p = .003$
Timing of Dropout				
Dropout after 1 Session	342 (10.7%)	219 (11.5%)	123 (9.4%)	3.63, $p = .062$
Dropout after 2 Sessions	230 (7.2%)	132 (6.9%)	98 (7.5%)	0.35, $p = .578$
Dropout after 3 Sessions	149 (4.6%)	79 (4.2%)	70 (5.4%)	2.51, $p = .124$
Reasons for Dropouts	Number (%) $n = 721$	Number (%) $n = 429$	Number (%) $n = 291$	χ^2, p-value
Detention/Prison*	60 (8.3%)	34 (7.54%)	26 (8.9%)	5.18, $p = .075$
Inpatient Stay*	55 (7.7%)	43 (10.0%)	12 (4.1%)	0.56, $p = .540$
No Clear Reason*	605 (84.0%)	352 (82.1%)	253 (86.9%)	2.29, $p = .134$
	Number (%) $n = 2789^{++}$	Number (%) $n = 1617$	Number (%) $n = 1172$	χ^2, p-value
Gaps between Sessions (y/n)	1133 (40.6%)	655 (40.5%)	478 (42.2%)	1.73, $p = .629$
Mental Health	968 (34.7%)	589 (36.4%)	379 (32.3%)	8.48, $p < .001$
Substance-Related	112 (4.0%)	51 (3.1%)	61 (5.2%)	3.49, $p = .022$
Either/Both	52 (1.9%)	15 (0.01%)	38 (3.24%)	12.25, $p = .003$
Number of Gaps				
1 Gap	700 (21.8%)	389 (20.5%)	311 (23.8%)	129.51, $p < .001$
2-3 Gaps	262 (11.2%)	218 (11.5%)	144 (12.3%)	35.62, $p = .393$
≥4 Gaps	71 (2.2%)	48 (2.5%)	23 (1.6%)	1.39, $p = .278$
Reasons for Gaps	Number (%) $n = 1133$	Number (%) $n = 655$	Number (%) $n = 478$	χ^2, p-value
Detention/Prison**	130 (11.5%)	77 (11.7%)	53 (11.1%)	0.01, $p = .538$
Inpatient Stay**	38 (3.4%)	23 (3.5%)	15 (3.1%)	2.44, $p = .094$
No Clear Reason**	965 (85.2%)	555 (84.7%)	410 (85.8%)	0.13, $p = .374$

Note. N = Number; % = Percentage; χ^2 = 2 x 2 chi-square test; p-value = Significance level.
$^{+}$ Participants who utilized outpatient treatment within 2 years of detention release.
$^{++}$ Participants with ≥2 outpatient sessions within two years post-detention * Percentages calculated out of total number of dropouts (n = 721). ** Percentages calculated out of total number of participants with ≥1 gaps (n = 1133).

Table 3.40 Summary of Results: Group Differences in Prevalence and Quantity of Treatment Services

		Demographic Groups			Mental Health Groups			Criminal History Groups			
Main Outcomes	Variables	Gender	Race	Age Cohorts	MAYSI-2 Positive Screen	Disorder Type	Prior Treatment	Violent Offender	Recidivist	Re-Detained/ Incarcerated	Cohort Groups
Prevalence Rates for Post-Detention Treatment Utilization*	Any Treatment	M > F	W > B	Y > O; MA > O	PS > No; Non-PS > No	C > MD > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Mental Health	M > F	W > B	Y > MA > O	PS > Non-PS > No	MD > C > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Substance-Related	M > F	W > B		PS > Non-PS > No	SD > C > MD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Either/Both	M > F	W > B	MA > Y; MA > O	PS > Non-PS > No	C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Outpatient	M > F	W > B	Y > O; MA > O	PS > Non-PS > No	C > MD > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Non-Outpatient		W > B		PS > Non-PS; PS > No	C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
Total Number of Treatment Services*	Any Treatment			Y > MA > O	PS > Non-PS > No	C > MD > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
	Mental Health			Y > MA > O	PS > No; PS > Non-PS	MD > SD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
	Substance-Related	M > F	W > B			C > MD; SD > MD					2 > 1
	Either/Both	M > F				C > MD; SD > MD	User > Non-User				
	Outpatient			Y > MA > O	PS > Non-PS > No	C > MD > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
	Non-Outpatient					C > SD; MD > SD					
Number of Outpatient Sessions per Month*	Any Outpatient			Y > MA; Y > O	Non-PS > No; PS > No	MD > SD; C > SD	User > Non-User				2 > 1
	Mental Health Outpatient				PS > Non-PS > No	MD > SD; C > SD		Viol > Non-Viol			2 > 1

Table 3.40 Continued.

	Substance-Related Outpatient			
	Either/Both Outpatient	PS > Non-PS; Non-PS > No	C > MD > SD	User > Non-User		2 > 1
Time between Treatment Services*	Any Outpatient			
	Mental Health Outpatient			
	Substance-Related Outpatient			
	Either/Both Outpatient			
	Non-Outpatient			Rec > Non-Rec	Re-Det/Inc > Not	
Length of Inpatient Stay*	Any Inpatient			
	Mental Health Inpatient			
	Substance-Related Inpatient			
	Either/Both Inpatient			

Note. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition; RAI = Risk Assessment Inventory. M = Male; F = Female; W = White; B = Black; Y = Younger; MA = Mid-Age; O = Older; PS = Positive screen; Non-PS = Non-positive screen; No = No MAYSI-2 Score; MD = Mental disorder; SD = Substance-related disorder; C = Comorbid; User = Pre-detention treatment user; Non-User = Not a pre-detention treatment user; Viol = Violent offender; Non-Viol = Non-violent offender; Rec = Recidivist; Non-Rec = not a recidivist; Re-Det/Inc = Re-detained or incarcerated within two years post-detention; Not = not re-detained or incarcerated within two years post-detention; 2 = Cohort Two; 1 = Cohort One. * Treatment utilization within two years of detention release.

Table 3.41 Summary of Results: Group Differences in Treatment Intensity, Dropouts, and Gaps

Main Outcomes	Variables	Demographic Groups			Mental Health Groups			Criminal History Groups			Cohort Groups
		Gender	Race	Age Cohorts	MAYSI-2 Positive Screen	Disorder Type	Prior Treatment	Violent Offender	Recidivist	Re-Detained/ Incarcerated	
Treatment Type User*	Only Mental Health	M > F		Y > MA > O	Non-PS > No; PS > No	MD > C > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Only Substance-Related	M > F		O > MA > Y	Non-PS > No; PS > No	DS > C > MD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec		2 > 1
	Only Either/Both	M > F			PS > No; PS > Non-PS		User > Non-User				2 > 1
	Mental Health and Substance	M > F	W > B		Non-PS > No; PS > No		User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Mental Health and Either/Both	M > F			Non-PS > No; PS > No	C > MD; C > SD	User > Non-User		Rec > Non-Rec		2 > 1
	Substance and Either/Both	M > F			PS > No		User > Non-User				2 > 1
	All Three Types	M > F	W > B	MA > Y; MA > O	Non-PS > No; PS > No		User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
Treatment Setting User*	Only Outpatient	M > F		Y > O; MA > O	PS > Non-PS > No	MD > C > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Only Non-Outpatient		W > B			SD > MD	User > Non-User		Rec > Non-Rec		
	Outpatient and Non-Outpatient		W > B	Y > O; MA > O	PS > No; PS > Non-PS	C > MD > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	Three Settings		W > B		PS > No; PS > Non-PS	C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
Outpatient User Intensity Levels*	1-2 Sessions	M > F	W > B	MA > Y; O > Y	Non-PS > No; PS > No	SD > MD; SD > C	User > Non-User		Rec > Non-Rec		2 > 1
	3-7 Sessions	M > F		MA > Y	Non-PS > No; PS > No		User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	8-12 Sessions	M > F			PS > No; PS > Non-PS	MD > C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	13-17 Sessions	M > F		MA > O	PS > No	MD > SD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1

Table 3.41 Continued.

Outpatient User Intensity Levels*	18-22 Sessions	M > F	Y > O MA > O	PS > No	C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	23+ Sessions	M > F	Y > MA > O	PS > Non-PS > No	C > MD > SD	User > Non-User	Viol > Non-Viol	Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
Non-Outpatient User Intensity Levels*	1 Stay/Visit	W > B	Y > O; MA > O	PS > No; PS > Non-PS	C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	2 Stays/Visits	W > B		PS > No; PS > Non-PS	C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	2 > 1
	3-4 Stays/Visits	W > B		PS > No; PS > Non-PS	C > MD	User > Non-User		Rec > Non-Rec		2 > 1
	5-6 Stay/Visit	W > B		PS > No; PS > Non-PS	C > MD; C > SD	User > Non-User		Rec > Non-Rec		
	7+ Stays/Visits				SD >MD					
Outpatient Dropouts*	Dropout	W > B	O > MA > Y	PS > No; PS > Non-PS	SD > MD > C	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
	Detention/Prison	M > F			C > MD > SD			Rec > Non-Rec	Re-Det/Inc > Not	
	Inpatient									
	No Clear Reason	W > B	MA > Y; O > Y		SD > MD > C	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
Outpatient Gaps*	Outpatient Gap		Y > MA; Y > O	Non-PS > PS > No	MD > SD; C > SD	User > Non-User				
	Detention/Prison		MA > O		C > MD; C > SD	User > Non-User		Rec > Non-Rec	Re-Det/Inc > Not	
	Inpatient				C > MD > SD	User > Non-User				
	No Clear Reason		MA > Y; O > Y		MD > C; SD > C	User > Non-User	Viol > Non-Viol			

Note. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition; RAI = Risk Assessment Inventory. M = Male; F = Female; W = White; B = Black; Y = Younger; MA = Mid-Age; O = Older; PS = Positive screen; Non-PS = Non-positive screen; No = No MAYSI-2 Score; MD = Mental disorder; SD = Substance-related disorder; C = Comorbid; User = Pre-detention treatment user; Non-User = Not a pre-detention treatment user; Viol = Violent offender; Non-Viol = Non-violent offender; Rec = Recidivist; Non-Rec = not a recidivist; Re-Det/Inc = Re-detained or incarcerated within two years post-detention; Not = not re-detained or incarcerated within two years post-detention; 2 = Cohort Two; 1 = Cohort One. * Treatment utilization within two years of detention release.

Table 3.42 Multicollinearity Statistics of Predictor Variables

	Multicollinearity Statistics	
Predictor Variables	Tolerance	Variance Inflation Factor
Male (y/n)	0.93	1.08
Black race (y/n)	0.88	1.14
Age at Detention Entry	0.84	1.20
Number of Prior Arrests	0.88	1.14
Number of Charges	0.98	1.02
Charge Severity (1-5)	0.45	2.90
Length of Stay in Detention	0.92	1.09
Violent Offender (y/n)	0.94	1.06
Risk Assessment Inventory	0.88	1.13
MAYSI-2 Positive Screen (y/n)	0.96	1.04
Conduct-Related Disorder (y/n)	0.35	2.88
Non-Conduct Mental Disorder (y/n)	0.48	2.11
Substance-Related Disorder (y/n)	0.88	1.14
Number of Disorders	0.30	3.36
Pre-Detention Outpatient Treatment (y/n)	0.28	3.55
Pre-Detention Non-Outpatient Treatment (y/n)	0.72	1.39

MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition

Table 3.43 Model Summary Statistics for Logistic Regression Models Predicting Treatment Utilization within Two Years Post-Detention

Treatment Outcomes	Model Summary Statistics (N = 8058)					
	-2 Log Likelihood	Nagelkerke R^2	χ^2	df	*P*	Classification Percentage
Post-Detention Treatment (Y/N)						
Stage 1	10134.05	.044	258.20	3	.000	63.7%
Stage 2	9861.06	.089	530.63	8	.000	65.6%
Stage 3	7007.15	.476	3395.05	14	.000	80.0%
Post-Detention Mental Health Treatment (Y/N)						
Stage 1	9552.82	.048	273.67	3	.000	69.0%
Stage 2	9356.00	.081	470.58	8	.000	69.4%
Stage 3	5793.67	.561	4032.81	14	.000	82.2%
Post-Detention Substance-Related Treatment (Y/N)						
Stage 1	5089.61	.040	156.34	3	.000	89.8%
Stage 2	4980.90	.068	265.05	8	.000	89.8%
Stage 3	3041.58	.501	2204.37	14	.000	89.9%
Post-Detention Either/Both Treatment (Y/N)						
Stage 1	3301.02	.024	66.08	3	.000	94.5%
Stage 2	3199.19	.061	167.92	8	.000	94.5%
Stage 3	2015.26	.453	1351.86	14	.000	94.6%
Post-Detention Outpatient Treatment (Y/N)						
Stage 1	10070.35	.043	255.27	3	.000	64.4%
Stage 2	9804.65	.087	520.88	8	.000	66.0%
Stage 3	7013.70	.469	3311.89	14	.000	80.0%
Post-Detention Non-Outpatient Treatment (Y/N)						
Stage 1	4187.08	.030	101.15	3	.000	92.4%
Stage 2	4117.57	.051	170.63	8	.000	92.4%
Stage 3	3281.36	.285	1006.83	14	.000	92.5%

Note. N = Number; df = Degrees of freedom; χ^2 = Chi-square test (comparing model with predictors to null model with no predictors); p = Significance level. Stage 1 includes the following demographic predictors: gender, race, and age. Stage 2 includes the following criminal history variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.44 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Treatment and Mental Health Treatment within Two Years Post-Detention

	Treatment Outcomes (N = 8058)									
	Any Treatment Utilization (y/n)					Mental Health Treatment (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.532	.066	1.70	1.50 – 1.94	.000	.365	.070	1.44	1.26 – 1.65	.000
Black (y/n)	-.041	.063	0.96	0.85 – 1.09	.520	-.065	.067	0.91	0.82 – 1.00	.003
Age	-.006	.019	0.98	0.96 – 0.99	.010	-.068	.020	0.94	0.90 – 0.97	.001
Stage 2: Criminal History Variables										
Number of Prior Arrests	.086	.013	1.09	1.06 – 1.12	.000	.047	.014	1.05	1.02 – 1.08	.001
Charge Number	-.012	.059	0.99	0.88 – 1.18	.835	.038	.064	1.04	0.92 – 1.28	.555
Charge Severity	.089	.032	1.09	1.03 – 1.16	.005	.079	.034	1.08	1.01 – 1.16	.020
Length of Stay	.001	.002	1.00	0.99 – 1.01	.886	-.002	.002	1.00	0.99 – 1.01	.474
Violent Offender (y/n)	.165	.064	1.18	1.04 – 1.34	.010	.123	.068	1.13	0.99 – 1.29	.069
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	3.303	.090	7.18	2.41 – 22.97	.000	.072	.004	2.08	1.67 – 12.08	.000
Non-Conduct Mental Disorder (y/n)	1.585	.093	4.88	4.07 – 5.82	.000	.012	.001	1.01	1.00 – 2.02	.000
Substance-Related Disorder (y/n)	.792	.069	2.21	1.93 – 2.53	.000	-.468	.074	0.63	0.54 – 0.72	.000
Number of Disorders	-.011	.009	0.99	0.97 – 1.00	.232	.045	.009	1.05	1.03 – 1.06	.000
Pre-Detention Outpatient (y/n)	.015	.002	1.02	1.00 – 1.21	.000	.011	.002	1.11	1.00 – 1.02	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.359	.090	1.43	1.20 – 1.71	.000	.182	.073	1.20	1.04 – 1.39	.013

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.45 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Substance-Related Treatment and Either/Both Treatment within Two Years Post-Detention

	Treatment Outcomes (N = 8058)									
	Substance-Related Treatment Utilization (y/n)					Either/Both Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.727	.104	2.07	1.69 – 2.54	.000	.654	.135	1.92	1.48 – 2.51	.000
Black (y/n)	-.035	.093	0.97	0.81 – 1.16	.708	-.050	.117	0.95	0.76 – 1.20	.669
Age	.197	.029	1.33	1.15 – 1.59	.000	.141	.037	1.15	1.08 – 1.24	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.080	.017	1.08	1.05 – 1.12	.000	.093	.019	1.10	1.06 – 1.14	.000
Charge Number	.002	.090	1.00	0.84 – 1.20	.979	.030	.114	1.03	0.82 – 1.29	.794
Charge Severity	.014	.046	1.01	0.93 - 1.11	.766	.001	.060	1.00	0.89 – 1.12	.994
Length of Stay	-.004	.003	0.99	0.98 – 1.00	.208	-.007	.004	0.99	0.98 – 1.00	.136
Violent Offender (y/n)	-.207	.099	0.81	0.67 – 0.99	.037	-.143	.124	0.87	0.68 – 1.11	.250
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.343	.133	1.41	1.09 – 1.83	.010	1.285	.447	1.02	1.01 – 1.92	.000
Non-Conduct Mental Disorder (y/n)	-.738	.135	1.99	1.48 – 2.62	.000	1.961	.091	1.00	0.99 – 1.01	.728
Substance-Related Disorder (y/n)	2.503	.888	2.02	1.74 – 2.92	.000	.824	.454	4.46	1.14 – 12.88	.000
Number of Disorders	-.044	.012	0.96	0.94 – 0.98	.000	.025	.012	1.03	1.00 – 1.05	.028
Pre-Detention Outpatient Treatment (y/n)	.003	.002	1.00	0.99 – 1.01	.136	.001	.002	1.00	0.99 – 1.01	.623
Pre-Detention Non-Outpatient Treatment (y/n)	-.023	.072	0.98	0.85 – 1.13	.750	.025	.072	1.03	0.89 – 1.18	.727

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.46 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Outpatient Treatment and Non-Outpatient Treatment within Two Years Post-Detention

	Treatment Outcomes (N = 8058)									
	Outpatient Treatment Utilization (y/n)					Non-Outpatient Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.521	.066	1.68	1.48 – 1.92	.000	.006	.105	1.01	0.92 – 1.23	.954
Black (y/n)	.027	.063	1.03	0.91 – 1.16	.675	-.470	.097	0.63	0.52 – 0.76	.000
Age	-.014	.019	0.99	0.95 – 1.03	.461	.005	.030	1.01	0.95 – 1.07	.866
Stage 2: Criminal History Variables										
Number of Prior Arrests	.082	.013	1.09	1.05 – 1.12	.000	.062	.017	1.06	1.03 – 1.14	.000
Charge Number	-.012	.059	0.98	0.88 – 1.11	.842	.009	.093	1.09	0.84 – 1.21	.922
Charge Severity	.085	.032	1.09	1.02 – 1.16	.007	.009	.049	1.01	0.92 – 1.11	.854
Length of Stay	.001	.002	1.00	0.99 – 1.02	.655	-.005	.003	1.00	0.98 – 1.01	.177
Violent Offender (y/n)	.186	.064	1.21	1.06 – 1.37	.003	-.035	.101	0.96	0.79 – 1.28	.727
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	3.298	.099	7.05	2.26 – 13.85	.000	1.630	.202	5.105	3.44 – 7.59	.000
Non-Conduct Mental Disorder (y/n)	1.605	.094	4.98	4.14 – 6.00	.000	.671	.210	1.96	1.30 – 2.95	.001
Substance-Related Disorder (y/n)	.684	.069	1.98	1.73 – 2.28	.000	.720	.107	2.054	1.67 – 2.53	.000
Number of Disorders	-.002	.009	0.99	0.98 – 1.02	.801	.128	.010	1.14	1.11 – 1.20	.000
Pre-Detention Outpatient Treatment (y/n)	.015	.002	1.05	1.01 – 1.22	.000	-.002	.002	1.00	0.99 – 1.01	.337
Pre-Detention Non-Outpatient Treatment (y/n)	.230	.081	1.26	1.08 – 1.48	.004	.212	.062	1.24	1.09 – 1.40	.001

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.47 Model Summary Statistics for Logistic Regression Predicting Treatment within Two Years Post-Detention: Cohort One

Model Summary Statistics (N = 5924)						
	-2 Log Likelihood	Nagelkerke R^2	χ^2	df	P	Classification Percentage
Post-Detention Treatment (Y/N)						
Stage 1	6992.27	.053	227.53	3	.000	70.3%
Stage 2	6901.19	.074	318.61	8	.000	75.5%
Stage 3	4780.66	.479	2439.13	14	.000	82.1%
Post-Detention Mental Health Treatment (Y/N)						
Stage 1	6569.85	.061	254.55	3	.000	73.8%
Stage 2	6496.84	.079	327.59	8	.000	73.9%
Stage 3	3894.46	.570	929.97	14	.000	84.4%
Post-Detention Substance-Related Treatment (Y/N)						
Stage 1	3089.69	.030	73.68	3	.000	90.5%
Stage 2	3020.90	.057	142.48	8	.000	92.5%
Stage 3	1870.52	.474	1292.80	14	.000	92.8%
Post-Detention Either/Both Treatment (Y/N)						
Stage 1	1677.83	.017	25.09	3	.000	94.5%
Stage 2	1656.05	.032	46.86	8	.000	96.8%
Stage 3	1073.85	.403	629.09	14	.000	96.8%
Post-Detention Outpatient Treatment (Y/N)						
Stage 1	6935.32	.052	228.01	3	.000	70.8%
Stage 2	6844.97	.074	318.36	8	.000	71.1%
Stage 3	4769.56	.473	2393.78	14	.000	82.2%
Post-Detention Non-Outpatient Treatment (Y/N)						
Stage 1	2743.58	.025	55.17	3	.000	93.7%
Stage 2	2728.85	.031	69.90	8	.000	93.9%
Stage 3	2167.92	.268	639.81	14	.000	93.9%

Note. N = Number; df = Degrees of freedom; χ^2 = Chi-square test (comparing model with predictors to null model with no predictors); p = Significance level. Stage 1 includes the following demographic predictors: gender, race, and age. Stage 2 includes the following criminal history variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.48 Predictors of Logistic Regression Associated with Increased Likelihood (+) and Decreased Likelihood (–) of Post-Detention Treatment Utilization: Total Sample, Cohort One, and Cohort Two

	Treatment Outcomes																	
	Any Treatment			Mental Health			Substance-Related			Either/Both			Outpatient			Non-Outpatient		
Predictor Variables	Total[a]	1[b]	2[c]	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2
Demographic Variables																		
Male (y/n)	+	+		+	+		+	+	+	+	+	+	+	+				
Black (y/n)				–												–	–	–
Age	–		–	–	–	–	+	+	+	+	+	+		–	–			
Criminal History Variables																		
Number of Prior Arrests	+	+		+	+		+	+		+		+	+	+		+	+	
Charge Number			–						–						–			
Charge Severity	+			+									+	+				
Length of Stay			–												+		–	
Violent Offender (y/n)	+	+			+		–	–					+	+				
RAI Scores	NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	
Mental Health Variables																		
MAYSI-2 – Positive Screen (y/n)	NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	+
Conduct Disorder (y/n)	+	+	+	+	+	+	+	+	–	+	+	+	+	+	--	+	+	+
Non-Conduct Mental Disorder (y/n)	+	+	+	+	+	+	+	–	–					+	+		+	
Substance-Related Disorder (y/n)	+	+	+	–	–	–	+	+	+	+		+	+	+	+	+	+	+
Number of Disorders		–	+	+		+	--	--		+		+		–	+	+	+	+
Pre-Detention Outpatient (y/n)	+	+		+	+						+	–	+	+				
Pre-Detention Non-Outpatient Treatment (y/n)	+	+	–	+	+	–		+	–		+	–	+	+	–	+	+	–

Note. NA = Not applicable because predictor variable excluded from analysis. Total = Total sample; 1 = Cohort one; 2 = Cohort two; (+) = Increased likelihood; (–) = Decreased likelihood; RAI = Risk Assessment Inventory; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. [a] N = 8038. [b] N = 5924. [c] N = 2114.

Table 3.49 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Treatment and Mental Health Treatment within Two Years Post-Detention: Cohort One

	Treatment Outcomes (N = 5924)									
	Treatment Utilization (y/n)					Mental Health Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.542	.078	1.72	1.48 – 2.00	.000	.406	.084	1.50	1.27 – 1.78	.000
Black (y/n)	-.041	.076	0.96	0.83 – 1.11	.591	-.042	.082	0.96	0.82 – 1.13	.607
Age	-.033	.023	1.03	0.98 – 1.08	.143	-.016	.025	0.90	0.86 – .94	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.123	.020	1.13	1.09 – 1.18	.000	.090	.022	1.09	1.05 – 1.14	.000
Charge Number	.010	.075	1.01	0.87 – 1.17	.891	.017	.082	1.01	0.87 – 1.19	.831
Charge Severity	.089	.040	1.09	1.01 – 1.08	.024	.092	.042	1.09	1.00 – 1.19	.032
Length of Stay	-.003	.003	1.00	0.99 – 1.12	.228	-.003	.003	1.00	0.99 – 1.01	.242
Violent Offender (y/n)	.186	.078	1.21	1.04 – 1.41	.016	.200	.083	1.22	1.04 – 1.44	.004
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	3.68	.124	9.74	1.14 –20.73	.000	1.834	.146	12.10	3.08 – 17.67	.000
Non-Conduct Mental Disorder (y/n)	1.71	.115	5.54	4.42 – 6.95	.000	1.929	.044	8.58	2.00 – 12.01	.001
Substance-Related Disorder (y/n)	.570	.084	1.77	1.50 – 2.09	.000	-.420	.091	0.65	0.55 – 0.79	.000
Number of Disorders	-.031	.010	0.97	0.95 – 0.99	.002	.008	.010	1.01	0.98 – 1.03	.422
Pre-Detention Outpatient Treatment (y/n)	.088	.012	1.09	1.06 – 1.12	.001	.068	.191	1.07	1.02 – 1.19	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.727	.209	2.07	1.37 – 3.12	.000	.184	1.53	1.53	1.07 – 2.19	.000

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.50 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Substance-Related Treatment and Either/Both Treatment within Two Years Post-Detention: Cohort One

	Treatment Outcomes (N = 5924)									
	Substance-Related Treatment Utilization (y/n)					Either/Both Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.654	.129	1.92	1.49 – 2.48	.000	.624	.183	1.87	1.30 – 2.67	.000
Black (y/n)	-.068	.120	0.93	0.78 – 1.18	.934	-.087	.165	0.92	0.66 – 1.26	.600
Age	.206	.037	1.23	1.14 – 1.32	.000	.167	.051	1.18	1.07 – 1.31	.001
Stage 2: Criminal History Variables										
Number of Prior Arrests	.155	.030	1.17	1.10 – 1.24	.000	.069	.041	1.07	0.98 – 1.16	.094
Charge Number	.004	.199	1.01	0.80 – 1.27	.975	.108	.165	1.11	0.81 – 1.54	.515
Charge Severity	-.006	.060	0.96	0.88 – 1.12	.920	-.120	.087	0.92	0.75 – 1.05	.167
Length of Stay	-.009	.005	0.99	0.98 – 1.01	.066	-.012	.007	0.99	0.97 – 1.00	.087
Violent Offender (y/n)	-.347	.129	0.71	0.55 – 0.91	.007	-.189	.173	0.83	0.59 – 1.16	.275
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.691	.170	2.00	1.42 – 2.79	.000	1.961	.357	3.02	1.01 – 5.23	.002
Non-Conduct Mental Disorder (y/n)	-.820	.171	0.44	0.32 – 0.62	.000	1.536	.829	1.00	0.98 – 1.04	.940
Substance-Related Disorder (y/n)	2.130	.906	4.67	1.59 – 7.98	.000	4.93	.716	3.43	1.43 – 13.03	.000
Number of Disorders	-.044	.015	0.96	0.93 – 0.99	.003	.008	.016	1.01	0.97 – 1.04	.622
Pre-Detention Outpatient Treatment (y/n)	-.003	.005	1.00	0.98 – 1.01	.622	.011	.005	1.01	1.00 – 1.02	.026
Pre-Detention Non-Outpatient Treatment (y/n)	.593	.164	1.81	1.32 – 2.50	.000	.150	.180	1.49	1.08 – 2.06	.010

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.51 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Outpatient Treatment and Non-Outpatient Treatment within Two Years Post-Detention: Cohort One

	Treatment Outcomes (N = 5924)									
	Outpatient Treatment Utilization (y/n)					Non-Outpatient Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.531	.078	1.73	1.56 – 1.98	.000	.039	.128	1.04	0.81 – 1.33	.762
Black (y/n)	.020	.076	1.02	0.88 – 1.18	.792	-.384	.121	0.68	0.54 – 0.86	.002
Age	.023	.023	0.94	0.91 – 0.98	.005	.038	.037	1.04	0.95 – 1.12	.306
Stage 2: Criminal History Variables										
Number of Prior Arrests	.121	.020	1.13	1.08 – 1.18	.000	.068	.030	1.09	1.03 – 1.16	.005
Charge Number	-.001	.075	1.00	0.86 – 1.16	.991	.050	.117	1.05	0.84 – 1.32	.666
Charge Severity	.082	.040	1.09	1.01 – 1.17	.037	.073	.063	1.08	0.95 – 1.21	.246
Length of Stay	-.002	.003	1.00	0.98 – 1.00	.540	-.009	.005	0.99	0.98 – 1.00	.046
Violent Offender (y/n)	.186	.077	1.20	1.03 – 1.40	.016	-.072	.126	0.93	0.73 – 1.19	.567
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	3.730	.126	14.57	3.69 –25.93	.000	1.92	.251	6.80	4.16 – 11.12	.000
Non-Conduct Mental Disorder (y/n)	1.758	.118	5.80	4.60 – 7.31	.000	.905	.255	2.47	1.50 – 4.07	.000
Substance-Related Disorder (y/n)	.480	.084	1.62	1.37 – 4.91	.000	.528	.134	1.69	1.31 – 2.21	.000
Number of Disorders	-.025	.010	0.98	0.95 – 0.99	.013	.118	.012	1.13	1.09 – 1.15	.000
Pre-Detention Outpatient Treatment (y/n)	.071	.010	1.07	1.01 – 1.10	.000	.001	.004	1.00	0.98 – 12.01	.915
Pre-Detention Non-Outpatient Treatment (y/n)	.656	.197	1.93	1.31 – 2.84	.001	.708	.145	2.03	1.52 – 2.70	.000

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level.

Table 3.52 Model Summary Statistics for Logistic Regression Models Predicting Treatment within Two Years Post-Detention: Cohort Two

Model Summary Statistics (N = 2114)						
	-2 Log Likelihood	Nagelkerke R^2	Chi-square	df	p	Classification Percentage
Post-Detention Treatment (Y/N)						
Stage 1	2076.33	.096	119.77	3	.000	63.8%
Stage 2	2016.39	.141	179.70	8	.000	66.2%
Stage 3	1464.93	.360	731.17	14	.000	80.0%
Post-Detention Mental Health Treatment (Y/N)						
Stage 1	2073.21	.150	194.80	3	.000	65.3%
Stage 2	2017.28	.189	250.72	9	.000	66.5%
Stage 3	1279.53	.605	988.47	16	.000	80.3%
Post-Detention Substance-Related Treatment (Y/N)						
Stage 1	1599.49	.023	23.74	3	.000	80.3%
Stage 2	1572.92	.048	50.30	9	.000	80.3%
Stage 3	885.60	.577	737.68	16	.000	84.5%
Post-Detention Either/Both Treatment (Y/N)						
Stage 1	1260.71	.031	27.67	3	.000	86.6%
Stage 2	1226.34	.068	62.05	9	.000	86.6%
Stage 3	907.76	.381	380.63	16	.000	88.7%
Post-Detention Outpatient Treatment (Y/N)						
Stage 1	2076.36	.096	119.70	3	.000	63.8%
Stage 2	2016.38	.141	170.67	9	.000	66.2%
Stage 3	1464.92	.488	731.15	16	.000	78.9%
Post-Detention Non-Outpatient Treatment (Y/N)						
Stage 1	2743.83	.025	55.17	3	.000	93.3%
Stage 2	2228.55	.031	69.90	9	.000	93.7%
Stage 3	2067.26	.268	630.81	16	.000	93.9%

Note. N = Number; df = Degrees of freedom; χ^2 = Chi-square test (comparing model with predictors to null model with no predictors); p = Significance level. Stage 1 includes the following demographic predictors: gender, race, and age. Stage 2 includes the following criminal history variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, violent offender (y/n), and Risk Assessment Inventory score. Stage 3 includes the following mental health predictor variables: Positive screen on Massachusetts Youth Screening Instrument-2nd Edition (y/n), conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.53 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Treatment and Mental Health Treatment within Two Years Post-Detention: Cohort Two

	Treatment Outcomes (N = 2114)									
	Treatment Utilization (y/n)					Mental Health Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.099	.189	1.10	0.76 – 1.60	.602	-.074	.190	1.08	0.74 – 1.56	.697
Black (y/n)	-.094	.159	0.91	0.67 – 1.24	.554	-.214	.160	0.81	0.59 – 1.11	.182
Age	-.134	.043	0.88	0.90 – 0.95	.002	-.253	.046	0.78	0.71 – 0.85	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	-.009	.021	0.99	0.95 – 1.03	.680	-.011	.022	0.99	0.95– 1.03	.989
Charge Number	-.232	.113	0.79	0.64 – 0.99	.040	-.062	.121	0.94	0.74 – 1.19	.940
Charge Severity	-.082	.070	0.92	0.80 – 1.06	.238	-.091	.073	0.91	0.79 – 1.05	.214
Length of Stay	.010	.005	1.01	1.00 – 1.20	.036	.009	.005	1.01	0.99 – 1.02	.069
Violent Offender (y/n)	.166	.141	1.18	0.89 – 1.56	.237	.053	.149	1.06	0.79 – 1.41	.721
Risk Assessment Inventory Scores	.009	.019	1.01	0.97 – 1.05	.633	-.003	.019	1.00	0.96 – 1.04	.888
Stage 3: Mental Health Variables										
MAYSI-2 – Positive Screen (y/n)	.092	.139	1.10	0.94 – 1.44	.506	.069	.149	1.07	0.80 – 1.43	.645
Conduct Disorder (y/n)	1.747	.210	5.74	3.80 – 8.66	.000	2.940	.428	7.37	1.03 – 11.98	.000
Non-Conduct Mental Disorder (y/n)	1.049	.206	2.86	1.91 – 4.27	.000	1.104	.820	4.07	1.02 – 9.09	.003
Substance-Related Disorder (y/n)	1.163	.154	2.20	2.37 – 4.32	.000	-.792	.160	0.45	0.33 – 0.62	.000
Number of Disorders	.256	.038	1.29	1.20 – 1.39	.000	.320	.036	1.38	1.28 – 1.48	.000
Pre-Detention Outpatient (y/n)	.001	.002	1.00	0.99 – 1.04	.725	-.003	.002	1.00	0.99 – 1.01	.255
Pre-Detention Non-Outpatient Treatment (y/n)	-.379	.108	0.68	0.55 – 0.85	.000	-.266	.107	0.77	0.62 – 0.95	.013

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.54 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Substance- Related Treatment and Either/Both Treatment within Two Years Post-Detention: Cohort Two

	Treatment Outcomes (N = 2114)									
	Substance-Related Treatment Utilization (y/n)					Either/Both Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.518	.234	1.68	1.06 – 2.65	.002	.648	.252	1.92	1.16 – 3.13	.010
Black (y/n)	-.014	.178	0.99	0.69 – 1.40	.939	-.075	.195	0.93	0.63 – 1.36	.700
Age	.185	.055	1.20	1.08 – 1.34	.001	.225	.061	1.25	1.11 – 1.41	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	-.006	.024	0.99	0.95 – 1.04	.803	.055	.026	1.06	1.01 – 1.11	.033
Charge Number	-.347	.164	0.71	0.51 – 0.98	.035	-.306	.183	0.74	0.51 – 1.05	.095
Charge Severity	-.049	.085	0.95	0.81 – 1.12	.567	.016	.095	1.01	0.84 – 1.22	.869
Length of Stay	.004	.006	1.00	0.99 – 1.02	.493	-.004	.007	1.00	0.96 – 1.09	.592
Violent Offender (y/n)	-.159	.180	0.85	0.60 – 1.21	.377	-.301	.201	0.74	0.50 – 1.29	.135
Risk Assessment Inventory	-.011	.024	0.90	0.95 – 1.04	.640	.003	.025	1.00	0.95 – 1.06	.922
Stage 3: Mental Health Variables										
MAYSI-2 – Positive Screen (y/n)	.284	.186	1.32	0.92 – 1.92	.127	.239	.214	1.27	0.84 – 1.93	.264
Conduct Disorder (y/n)	-1.015	.284	0.36	0.21 – 0.63	.000	2.081	.772	2.01	1.05 – 2.23	.000
Non-Conduct Mental Disorder (y/n)	-.841	.310	0.43	0.34 – 0.79	.007	1.532	.033	1.05	0.99 – 1.02	.090
Substance-Related Disorder (y/n)	2.480	.860	3.49	2.94 – 4.17	.000	5.003	.717	5.91	6.53 – 16.93	.000
Number of Disorders	-.010	.022	0.99	0.95 – 1.04	.638	.098	.023	1.10	1.05 – 1.15	.000
Pre-Detention Outpatient Treatment (y/n)	.003	.003	1.00	0.98 – 1.01	.228	-.007	.003	0.99	0.98 – 1.00	.009
Pre-Detention Non-Outpatient Treatment (y/n)	-.253	.107	0.78	0.63 – 0.96	.018	-.245	.108	0.78	0.63 – 0.97	.023

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.55 Odds Ratios and Associated Statistics for Logistic Regression Models Predicting Outpatient Treatment and Non-Outpatient Treatment within Two Years Post-Detention: Cohort Two

	Treatment Outcomes (N = 2114)									
	Outpatient Treatment Utilization (y/n)					Non-Outpatient Treatment Utilization (y/n)				
Predictor Variables	Log-Odds	SE	Odds Ratios	95% CI	p	Log-Odds	SE	Odds Ratios	95% CI	p
Stage 1: Demographic Variables										
Male (y/n)	.099	.189	1.10	0.76 – 1.60	.602	-.227	.217	0.76	0.50 – 1.16	.202
Black (y/n)	-.094	.159	0.91	0.67 – 1.24	.554	-.476	.185	0.62	0.43 – 0.89	.010
Age	-.134	.043	0.88	0.80 – 0.95	.002	.014	.057	1.02	0.91 – 1.13	.807
Stage 2: Criminal History Variables										
Number of Prior Arrests	-.009	.021	0.91	0.95 – 1.03	.680	.045	.025	1.05	0.99 – 1.10	.076
Charge Number	-.232	.113	0.79	0.64 – 0.99	.040	-.246	.175	0.78	0.55 – 1.10	.160
Charge Severity	-.082	.070	0.92	0.80 – 1.06	.238	-.087	.090	0.92	0.77 – 1.09	.337
Length of Stay	.010	.005	1.01	1.00 – 1.20	.036	.004	.006	1.00	0.99 – 1.02	.470
Violent Offender (y/n)	.166	.141	1.19	0.89 – 1.55	.237	-.155	.190	0.86	0.59 – 1.24	.416
Risk Assessment Inventory Scores	.009	.019	1.01	0.97 – 1.05	.633	-.006	.024	0.99	0.95 – 1.04	.816
Stage 3: Mental Health Variables										
MAYSI-2 – Positive Screen (y/n)	.092	.139	1.10	0.83 – 1.44	.506	.942	.239	2.56	1.61 – 4.09	.000
Conduct Disorder (y/n)	1.746	.20	5.74	3.80 – 8.66	.000	.663	.410	3.94	1.87 – 4.33	.011
Non-Conduct Mental Disorder (y/n)	1.056	.206	2.86	1.91 – 4.27	.000	.379	.438	1.46	0.62 – 3.45	.388
Substance-Related Disorder (y/n)	1.163	.154	3.20	2.37 – 4.32	.000	.860	.194	2.36	1.61 – 3.46	.000
Number of Disorders	.256	.038	1.29	1.19 – 1.39	.000	.221	.035	1.24	1.29 – 1.31	.000
Pre-Detention Outpatient Treatment (y/n)	.001	.002	1.00	0.99 – 1.01	.725	-.005	.003	1.00	0.99 – 1.01	.058
Pre-Detention Non-Outpatient Treatment (y/n)	-.379	.108	0.68	0.55 – 0.85	.000	-.183	.095	0.83	0.69 – 1.00	.055

Note. N = Number; SE = Standard error; CI = Confidence interval; p = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.56 Life Table: Time to First Post-Detention Treatment Utilization

Time Interval	Participants Entering[a] Number	Censored Cases[c] Number	Risk Ratio[a] Number	Treatment Users Number	Treatment User Rate[b] Proportion	Non-Users Surviving[c] Proportion (SD)	Probability of Treatment[b] Probability (SD)	Hazard Rate[b] Rate (SD)
0.0 – 6.0 Months	9664	0	9664.00	1582	.16	.84 (.00)	.055 (.001)	.06 (.00)
6.01 – 12.0 Months	7112	0	7112.00	292	.04	.71 (.00)	.010 (.00)	.01 (.00)
12.01 – 15.0 Months	6820	59	6790.00	236	.03	.68 (.00)	.008 (.00)	.01 (.00)
15.01 – 18.0 Months	6525	52	6499.00	165	.03	.66 (.00)	.006 (.00)	.01 (.00)
18.01 – 21.0 Months	6308	59	6278.50	190	.03	.64 (.00)	.007 (.00)	.01 (.00)
21.01 – 24.0 Months	6059	49	6034.00	155	.03	.63 (.00)	.006 (.00)	.01 (.00)
2.0 – 2.5 Years	5855	59	5825.00	142	.02	.60 (.01)	.005 (.00)	.01 (.00)
2.51 – 3.0 Years	5473	77	5434.50	279	.05	.58 (.01)	.005 (.00)	.01 (.00)
3.01 – 3.5 Years	5132	81	5091.00	265	.05	.54 (.01)	.005 (.00)	.01 (.00)
3.51 – 4.0 Years	4786	82	4745.00	221	.05	.51 (.01)	.004 (.00)	.01 (.00)
4.01 – 4.5 Years	4483	84	4441.00	207	.05	.49 (.01)	.005 (.00)	.01 (.00)
4.51 – 5.0 Years	4159	90	4114.00	207	.05	.46 (.01)	.004 (.00)	.01 (.00)
5.01 – 5.5 Years	3862	77	3823.00	163	.04	.44 (.01)	.003 (.00)	.01 (.00)
5.51 – 6.0 Years	3622	64	3590.00	167	.05	.42 (.01)	.003 (.00)	.01 (.00)
6.01 – 6.5 Years	3391	98	3342.00	125	.04	.41 (.01)	.003 (.00)	.01 (.00)
6.51 – 7.0 Years	3168	99	3118.50	127	.04	.39 (.01)	.003 (.00)	.01 (.00)
7.01 – 7.5 Years	2942	155	2864.50	121	.04	.37 (.01)	.003 (.00)	.01 (.00)
7.51 – 8.0 Years	2666	185	2573.50	103	.04	.36 (.01)	.002 (.00)	.01 (.00)
8.01 – 8.5 Years	2378	153	2301.50	74	.03	.35 (.01)	.002 (.00)	.01 (.00)
8.51 – 9.0 Years	2151	159	2071.50	89	.04	.33 (.01)	.002 (.00)	.01 (.00)
9.01 – 9.5 Years	1903	124	1841.00	71	.04	.32 (.01)	.002 (.00)	.01 (.00)
9.51 – 10.0 Years	1708	143	1636.50	68	.04	.31 (.01)	.002 (.00)	.01 (.00)
10.01 – 10.5 Years	1497	142	1426.00	68	.05	.29 (.01)	.002 (.00)	.01 (.00)
10.51 – 11.0 Years	1287	146	1214.00	46	.04	.28 (.01)	.002 (.00)	.01 (.00)
11.01 – 11.5 Years	1095	156	1017.00	45	.04	.27 (.01)	.002 (.00)	.01 (.00)
11.51 – 12.0 Years	894	171	808.50	40	.05	.25 (.01)	.002 (.00)	.01 (.00)
12.01 – 12.5 Years	683	143	611.50	27	.04	.24 (.01)	.002 (.00)	.01 (.00)
12.51 – 13.0 Years	513	121	452.50	22	.05	.23 (.01)	.002 (.00)	.01 (.00)
13.01 – 13.5 Years	370	143	298.50	12	.04	.22 (.01)	.002 (.00)	.01 (.00)
13.51 – 14.0 Years	216	212	110.00	3	.03	.22 (.01)	.001 (.00)	.00 (.00)

Note. SD = Standard deviation. [a] At start of time interval. [b] During time interval; [c] At end of time interval.

Table 3.57 Time to First Treatment: Demographic, Mental Health, and Criminal History Groups

	Total Sample N = 9664	Treatment Users	Non-Users (Censored)	Time to First Treatment (in Days)		Survival Curve Indicators		
						Breslow/ Wilcoxon	Tarone-Ware	Log Rank
Variables	Categories/ Groups	Number (%)	Number (%)	Median (SD)	95% CI	χ^2, p-value	χ^2, p-value	χ^2, p-value
Sample	Any Treatment	6436 (66.6%)	3228 (33.4%)	531.0 (19.28)	493.21 – 568.79	--	--	--
Treatment Type	Mental Health	4811 (49.8%)	--	446.0 (19.96)	406.88 – 485.12	86.65, $p < .001$	83.88, $p < .001$	68.75, $p < .001$
	Substance-Related	1222 (12.6%)	--	879.0 (56.38)	768.49 – 989.51			
	Either/Both	403 (4.2%)	--	685.0 (85.44)	517.57 – 852.46			
Treatment Setting	Outpatient	5761 (59.6%)	--	439.0 (17.29)	405.11 – 472.89	198.74, $p < .001$	176.28, $p < .001$	109.87, $p < .001$
	Non-Outpatient	675 (6.98%)	--	1528.0 (49.52)	1430.95 – 1625.05			
Gender	Male n = 6062	3850 (63.5%)	2212 (35.5%)	307.0 (14.20)	279.18 – 334.82	507.33, $p < .001$	540.08, $p < .001$	454.37, $p < .001$
	Female n = 3602	2586 (71.8%)	1016 (28.2%)	1191.0 (41.89)	1108.90 – 1273.11			
Race	White n = 3367	2545 (75.6%)	822 (24.4%)	699.0 (37.64)	625.23 – 772.77	21.08, $p < .001$	23.60, $p < .001$	20.23, $p < .001$
	Black n = 3464	3464 (61.1%)	2203 (38.9%)	456.0 (23.20)	410.51 – 501.48			
Age Cohorts	Younger n = 2406	1816 (75.5)[a]	590 (24.5%)	591.0 (31.67)	528.93 – 653.07	15.59, $p < .001$	28.19, $p < .001$	39.97, $p < .001$
	Mid-Age n = 3924	2692 (68.6%)[b]	1232 (31.4%)	455.0 (24.98)	406.03 – 503.96			
	Older n = 3334	1928 (57.8%)[c]	1406 (42.2%)	561.0 (58.39)	446.55 – 675.45			

Table 3.57 Continued.

MAYSI-2	No MAYSI-2 *n* = 7132	4732 (66.3%)[a]	2400 (33.7%)	992.0 (26.79)	939.48 – 1044.51			
	Non-positive *n* = 1758	1234 (70.2%)[b]	524 (29.8%)	111.0 (11.28)	88.88 – 133.11	1868.98, *p* < .001	2053.05, *p* < .001	2213.78, *p* < .001
	Positive Screen *n* = 774	470 (60.7%)[b]	304 (39.3%)	93.0 (6.83)	79.61 – 106.39			
Disorder Type	Mental Disorder *n* = 357	3093 (86.6%)[a]	478 (13.4%)	516.0 (24.20)	468.55 – 563.44			
	Substance *n* = 662	627 (94.7%)[b]	35 (5.3%)	1174.0 (81.28)	1014.69 – 1333.31	81.91, *p* < .001	109.19, *p* < .001	102.69, *p* < .001
	Comorbid *n* = 2782	2716 (97.5%)[c]	66 (2.4%)	424.0 (19.28)	493.31 – 568.79			
Pre-Detention Treatment	No treatment *n* = 7226	4574 (63.3%)	2652 (36.7%)	1047.0 (25.47)	997.07 – 1096.92	3604.13, *p* < .001	3617.47, *p* < .001	3493.60, *p* < .001
	Prior Treatment *n* = 2438	1862 (76.4%)	576 (23.6%)	46.0 (3.47)	39.19 – 52.81			
Violent Offender	No *n* = 6122	4020 (65.7%)	2102 (34.3%)	580.0 (29.21)	405.03 – 502.97	28.82, *p* < .001	33.32, *p* < .001	33.93, *p* < .001
	Yes *n* = 3546	2416 (68.2%)	1126 (31.8%)	454.0 (24.98)	493.21 – 568.79			
Recidivist	No *n* = 4437	2577 (58.1%)	1860 (41.9%)	531.0 (19.29)	286.47 – 351.53	170.48, *p* < .001	182.07, *p* < .001	153.46, *p* < .001
	Yes *n* = 5227	3859 (73.8%)	1368 (26.2%)	318.0 (16.59)	735.79 – 864.20			
Re-Detained/ Incarcerated	No *n* = 4358	2526 (58.0%)	1832 (42.0%)	536.0 (39.03)	456.51 – 609.49	0.04, *p* = .842	1.11, *p* = .292	2.08, *p* = .149
	Yes *n* = 5306	3910 (73.7%)	1396 (26.3%)	521.0 (21.59)	488.67 – 573.32			

Note. *n* = Number; % = Percentage; χ^2 = Chi-square test; *p*-value = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. Different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired groups.

Table 3.58 Model Summary Statistics for Cox Regression Models Predicting Time to First Treatment

Treatment Outcomes	Model Summary Statistics (*N* = 8554)				Change Statistics*		
	-2 LL	χ^2	df	*p*	χ^2	df	*p*
Post-Detention Treatment							
Stage 1	98306.19	243.42	3	.000	239.08	3	.000
Stage 2	97834.80	767.24	9	.000	471.34	6	.000
Stage 3	91172.09	7807.45	15	.000	6112.12	6	.000
Post-Detention Mental Health Treatment							
Stage 1	83658.67	321.58	3	.000	315.95	3	.000
Stage 2	83252.88	760.64	9	.000	404.78	6	.000
Stage 3	76243.71	8364.56	15	.000	7010.12	6	.000
Post-Detention Substance-Related Treatment							
Stage 1	38927.16	122.12	3	.000	118.82	3	.000
Stage 2	38664.15	401.15	9	.000	263.08	6	.000
Stage 3	31685.29	7809.60	15	.000	6978.50	6	.000
Post-Detention Either/Both Treatment							
Stage 1	25228.87	135.04	3	.000	129.99	3	.000
Stage 2	24992.11	408.50	9	.000	236.77	6	.000
Stage 3	19565.63	6927.60	15	.000	5426.05	6	.000
Post-Detention Outpatient Treatment							
Stage 1	95217.64	230.72	3	.000	226.91	3	.000
Stage 2	94740.13	761.92	9	.000	477.10	6	.000
Stage 3	88743.73	7659.04	15	.000	5996.40	6	.000
Post-Detention Non-Outpatient Treatment							
Stage 1	27177.58	341.45	3	.000	328.02	3	.000
Stage 2	27072.54	444.90	9	.000	105.07	6	.000
Stage 3	2396.08	53393.14	15	.000	3103.62	6	.000

Note. *N* = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; *p* = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.59 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Treatment and First Mental Health Treatment

	Treatment Outcomes (N = 8554)									
	First Treatment Utilization					First Mental Health Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.045	.029	1.05	0.99 – 1.11	.117	-.022	.031	0.98	0.92 – 1.04	.481
Black (y/n)	-.028	.028	0.97	0.92 – 1.03	.305	-.040	.030	0.96	0.91 – 1.02	.175
Age	-.052	.008	0.95	0.93 – 0.97	.000	-.069	.009	0.93	0.92 – 0.95	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.035	.005	1.04	1.02 – 1.06	.000	.033	.005	1.03	1.02 – 1.05	.000
Charge Number	-.009	.013	0.99	0.97 – 1.02	.494	-.010	.013	0.99	0.97 – 1.02	.443
Charge Severity	.041	.013	1.04	1.01 – 1.07	.002	.034	.015	1.05	1.01 – 1.07	.019
Length of Stay	.001	.001	1.00	0.99 – 1.01	.323	.000	.001	1.00	0.99 – 1.00	.664
Violent Offender (y/n)	.107	.028	1.11	1.05 – 1.18	.000	.084	.030	1.09	1.03 – 1.15	.006
Re-Detained/Incarcerated (y/n)	.170	.030	1.19	1.12 – 1.26	.000	.171	.033	1.19	1.11 – 1.27	.000
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	1.107	.035	3.03	2.83 – 3.24	.000	1.241	.037	3.46	3.22 – 3.72	.000
Non-Conduct Mental Disorder (y/n)	1.365	.040	3.92	3.62 – 4.23	.000	2.30	.054	9.97	8.96 – 11.10	.000
Substance-Related Disorder (y/n)	.668	.031	1.95	1.83 – 2.07	.000	.047	.033	1.05	0.98 – 1.12	.156
Number of Disorders	.005	.003	1.01	0.99 – 1.01	.096	.023	.003	1.02	1.01 – 1.03	.000
Pre-Detention Outpatient (y/n)	.414	.040	1.51	1.40 –1 .64	.000	.302	.043	1.35	1.24 – 1.47	.000
Pre-Detention Non-Outpatient (y/n)	.096	.053	1.10	0.99 – 1.22	.074	.114	.056	1.12	1.01 – 1.25	.042

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.60 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Substance-Related Treatment and First Either/Both Treatment

	Treatment Outcomes (N = 8554)									
	First Substance-Related Treatment Utilization					First Either/Both Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.197	.047	1.22	1.11 – 1.33	.000	.189	.057	1.21	1.08 – 1.35	.001
Black (y/n)	-.045	.043	0.96	0.88 – 1.04	.296	-.027	.054	0.97	0.87 – 1.08	.619
Age	-.022	.014	0.98	0.95 – 1.01	.115	-.011	.017	0.99	0.96 – 1.02	.503
Stage 2: Criminal History Variables										
Number of Prior Arrests	.031	.007	1.03	1.02 – 1.05	.000	.044	.008	1.05	1.03 – 1.06	.000
Charge Number	-.064	.031	0.94	0.88 – 0.99	.040	-.047	.049	0.95	0.87 – 1.05	.331
Charge Severity	.037	.021	1.04	1.00 – 1.08	.071	.040	.026	1.04	0.99 – 1.10	.122
Length of Stay	.000	.002	1.00	1.00 – 1.01	.770	.000	.002	1.00	1.00 – 1.01	.946
Violent Offender (y/n)	.046	.047	1.05	0.96 – 1.15	.326	.130	.057	1.14	1.02 – 1.29	.022
Re-Detained/Incarcerated (y/n)	.179	.047	1.20	1.09 – 1.31	.000	.123	.061	1.13	1.00 – 1.27	.042
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.686	.054	1.99	1.79 – 2.01	.000	1.020	.068	2.77	2.43 – 3.17	.000
Non-Conduct Mental Disorder (y/n)	-.256	.052	0.77	0.70 – 0.86	.000	1.440	.114	4.22	3.38 – 5.27	.000
Substance-Related Disorder (y/n)	13.188	7.772	3.98	0.13 – 22.09	.090	12.466	10.062	3.84	0.01 – 5.26	.215
Number of Disorders	.017	.004	1.02	1.00 – 1.04	.005	.050	.004	1.05	1.04 – 1.07	.000
Pre-Detention Outpatient Treatment (y/n)	.848	.065	2.34	2.05 – 2.65	.000	.928	.082	2.53	2.15 – 2.97	.000
Pre-Detention Non-Outpatient Treatment (y/n)	-.334	.089	0.72	0.60 – 0.85	.000	-.277	.097	0.76	0.63 – 0.92	.004

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.61 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Outpatient Treatment and First Non-Outpatient Treatment

	Treatment Outcomes (*N* = 8554)									
	First Outpatient Treatment Utilization					First Non-Outpatient Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.034	.029	1.04	0.98 – 1.10	.245	-.029	.053	0.97	0.88 – 1.08	.586
Black (y/n)	-.009	.028	0.99	0.94 – 1.05	.755	-.293	.052	0.75	0.67 – 0.83	.000
Age	-.054	.009	0.95	0.93 – 0.96	.000	-.072	.016	0.93	0.90 – 0.96	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.036	.005	1.04	1.03 – 1.05	.000	.027	.009	1.03	1.01 – 1.05	.003
Charge Number	-.011	.014	0.99	0.96 – 1.02	.444	-.103	.053	0.90	0.81 – 1.00	.054
Charge Severity	.035	.014	1.05	1.01 – 1.06	.011	.015	.024	1.02	0.97 – 1.07	.529
Length of Stay	.001	.001	1.00	1.00 – 1.01	.546	.001	.002	1.00	1.00 – 1.01	.489
Violent Offender (y/n)	.110	.029	1.12	1.06 – 1.19	.000	.041	.054	1.04	0.94 – 1.16	.449
Re-Detained/Incarcerated (y/n)	.167	.030	1.18	1.11 – 1.25	.000	.076	.056	1.08	0.97 – 1.20	.177
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	1.137	.035	3.12	2.91 – 3.34	.000	.720	.066	2.06	1.81 – 2.34	.000
Non-Conduct Mental Disorder (y/n)	1.392	.041	4.02	3.71 – 4.36	.000	1.745	.093	5.73	4.77 – 6.88	.000
Substance-Related Disorder (y/n)	.584	.031	1.79	1.69 – 1.91	.000	1.199	.064	3.32	2.93 – 3.76	.000
Number of Disorders	.008	.003	1.01	1.00 – 1.02	.010	.065	.004	1.07	1.06 – 1.08	.000
Pre-Detention Outpatient Treatment (y/n)	.432	.041	1.54	1.42 – 1.67	.000	.394	.090	1.48	1.24 – 1.77	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.062	.054	1.06	0.96 – 1.18	.253	.295	.106	1.34	1.09 – 1.66	.006

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level.

Table 3.62 Model Summary Statistics for Cox Regression Models Predicting Time to First Treatment: Cohort One

Treatment Outcomes	Model Summary Statistics (N = 6203)				Change Statistics*		
	-2 LL	χ^2	df	p	χ^2	df	p
Post-Detention Treatment							
Stage 1	68966.9	269.81	3	.000	266.23	3	.000
Stage 2	68824.49	411.98	9	.000	142.40	6	.000
Stage 3	63876.44	6581.82	15	.000	4948.05	6	.000
Post-Detention Mental Health Treatment							
Stage 1	59107.17	327.53	3	.000	323.85	3	.000
Stage 2	58981.98	451.27	9	.000	125.29	6	.000
Stage 3	53176.47	7251.00	15	.000	5805.11	6	.000
Post-Detention Substance-Related Treatment							
Stage 1	28108.81	110.65	3	.000	107.97	3	.000
Stage 2	27894.37	234.76	9	.000	124.54	6	.000
Stage 3	22452.60	6368.45	15	.000	5531.76	6	.000
Post-Detention Either/Both Treatment							
Stage 1	16719.18	126.81	3	.000	122.63	3	.000
Stage 2	16655.88	189.91	9	.000	63.32	6	.000
Stage 3	12656.03	5386.74	15	.000	3999.51	6	.000
Post-Detention Outpatient Treatment							
Stage 1	66409.72	260.81	3	.000	257.87	3	.000
Stage 2	66259.79	410.63	9	.000	149.27	6	.000
Stage 3	61404.10	6483.21	15	.000	4855.96	6	.000
Post-Detention Non-Outpatient Treatment							
Stage 1	21990.37	246.83	3	.000	239.98	3	.000
Stage 2	21942.23	294.60	9	.000	48.30	6	.000
Stage 3	19275.46	4452.95	15	.000	2666.76	6	.000

Note. N = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; p = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.63 Predictors of Cox Regression Analyses Associated with Increased Risk (+) and Decreased Risk (–) of Time to First Treatment: Total Sample, Cohort One, and Cohort Two

	Treatment Outcomes															
	Any Treatment			Mental Health			Substance-Related			Either/Both			Outpatient			Non-Outpatient		
Predictor Variables	Total[a]	1[b]	2[c]	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2
Demographic Variables																		
Male (y/n)							+	+	+	+	+	+						–
Black (y/n)			–			–						–			–	–	–	–
Age	–	–	–	–	–	–						–	–	–	–	–	–	–
Criminal History Variables																		
Number of Prior Arrests	+	+		+	+		+	+		+	+		+	+		+	+	+
Charge Number							–											
Charge Severity	+	+		+	+								+	+				
Length of Stay																		
Violent Offender (y/n)	+	+		+	+			+		+	+		+	+				
Re-Detained/Incarcerated (y/n)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
RAI Scores	NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	
Mental Health Variables																		
MAYSI-2 – Positive Screen (y/n)	NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	+
Conduct Disorder (y/n)	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	
Non-Conduct Mental Disorder (y/n)	+	+	+	+	+	+	–	–		+	+	+	+	+	+	+	+	+
Substance-Related Disorder (y/n)	+	+	+					+					+	+	+	+	+	+
Number of Disorders			+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Pre-Detention Outpatient Treatment (y/n)	+	+	–	+	+	–	+	+		+	+	–	+	+	–	+	+	
Pre-Detention Non-Outpatient Treatment (y/n)				+			–	–	–	–				–		+		

Note. NA = Not applicable because predictor excluded from analysis; Total = Total Sample; 1 = Cohort One; 2 = Cohort Two; (+) = Increased Risk; (–) = Decreased Risk; RAI = Risk Assessment Inventory; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. [a] N = 8544. [b] N = 6203. [c] N = 2341.

Table 3.64 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Treatment and First Mental Health Treatment: Cohort One

	Treatment Outcomes (N = 6203)									
	First Treatment Utilization					First Mental Health Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.061	.033	1.06	0.99 – 1.13	.064	.021	.036	1.02	0.95 – 1.09	.548
Black (y/n)	-.023	.032	0.98	0.92 – 1.04	.479	-.015	.034	0.99	0.92 – 1.05	.654
Age	-.039	.010	0.96	0.94 – 0.98	.000	-.048	.010	0.95	0.93 – 0.97	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.046	.008	1.05	1.03 – 1.06	.000	.043	.009	1.04	1.03 – 1.06	.000
Charge Number	-.004	.011	0.99	0.98 – 1.02	.726	-.006	.011	0.99	0.97 – 1.02	.603
Charge Severity	.046	.016	1.05	1.02 – 1.08	.003	.041	.017	1.04	1.01 – 1.08	.015
Length of Stay	-.001	.001	0.99	0.99 – 1.03	.626	-.001	.001	0.99	0.98 – 1.04	.496
Violent Offender (y/n)	.158	.033	1.17	1.10 – 1.25	.000	.142	.035	1.15	1.08 – 1.24	.000
Re-Detained/Incarcerated (y/n)	.134	.034	1.14	1.07 – 1.22	.000	.141	.037	1.15	1.07 – 1.24	.000
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	1.236	.040	3.44	3.18 – 3.72	.000	1.343	.042	3.83	3.53 – 4.16	.000
Non-Conduct Mental Disorder (y/n)	1.611	.046	5.01	4.58 – 5.48	.000	2.608	.063	13.57	11.98 – 15.36	.000
Substance-Related Disorder (y/n)	.631	.036	1.88	1.75 – 2.02	.000	-.013	.039	0.99	0.91 – 1.07	.741
Number of Disorders	-.008	.004	0.99	0.96 – 1.01	.052	.012	.004	1.01	1.00 – 1.02	.001
Pre-Detention Outpatient Treatment (y/n)	.742	.055	2.10	1.89 – 2.34	.000	.650	.057	1.92	1.72 – 2.14	.000
Pre-Detention Non-Outpatient Treatment (y/n)	-.119	.095	0.89	0.74 – 1.07	.212	-.176	.100	0.84	0.69 – 1.02	.077

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level.

Table 3.65 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Substance-Related Treatment and First Either/Both Treatment: Cohort One

	Treatment Outcomes (N = 6203)									
	First Substance-Related Treatment Utilization					First Either/Both Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.149	.051	1.16	1.05 – 1.29	.004	.146	.066	1.16	1.02 – 1.32	.026
Black (y/n)	-.076	.050	0.93	0.84 – 1.02	.128	-.054	.064	0.94	0.84 – 1.08	.399
Age	-.002	.016	0.99	0.97 – 1.03	.920	.026	.020	1.03	0.99 – 1.07	.197
Stage 2: Criminal History Variables										
Number of Prior Arrests	.050	.013	1.05	1.02 – 1.08	.000	.060	.018	1.06	1.03 – 1.10	.001
Charge Number	-.065	.034	0.94	0.88 – 1.00	.059	-.084	.068	0.92	0.80 – 1.05	.218
Charge Severity	.036	.024	1.04	0.99 – 1.09	.132	.024	.031	1.02	0.96 – 1.09	.438
Length of Stay	-.001	.002	0.99	0.99 – 1.00	.541	-.001	.002	0.99	0.99 – 1.00	.792
Violent Offender (y/n)	.110	.054	1.12	1.01 – 1.24	.042	.255	.068	1.29	1.13 – 1.48	.000
Re-Detained/Incarcerated (y/n)	.130	.054	1.14	1.02 – 1.27	.016	.060	.018	1.06	1.03 – 1.10	.001
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.887	.063	2.43	2.15 - 2.75	.000	.991	.079	2.69	2.31 – 3.14	.000
Non-Conduct Mental Disorder (y/n)	-.333	.060	0.72	0.64 – 0.81	.000	2.031	.173	7.62	5.43 – 10.70	.000
Substance-Related Disorder (y/n)	13.323	8.901	1.27	1.20 – 3.74	.003	11.687	8.487	1.02	0.97 – 1.23	.168
Number of Disorders	.016	.005	1.02	1.01 – 1.03	.001	.048	.005	1.05	1.03 – 1.06	.000
Pre-Detention Outpatient Treatment (y/n)	1.362	.089	3.91	3.28 – 4.65	.000	1.276	.120	3.58	2.83 – 4.53	.000
Pre-Detention Non-Outpatient Treatment (y/n)	-.597	.148	0.55	0.41 – 0.74	.000	-.283	.178	0.75	0.53 – 1.07	.112

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.66 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Outpatient Treatment and First Non-Outpatient Treatment: Cohort One

	Treatment Outcomes (N = 6203)									
	First Outpatient Treatment Utilization					First Non-Outpatient Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.042	.034	1.04	0.98 – 1.11	.205	. 052	.058	1.05	0.94 – 1.18	.365
Black (y/n)	-.004	.033	0.99	0.93 – 1.06	.895	-.250	.056	0.80	0.70 – 0.87	.000
Age	-.042	.010	0.96	0.94 – 0.97	.000	-.044	.017	0.96	0.93 – 0.99	.010
Stage 2: Criminal History Variables										
Number of Prior Arrests	.050	.009	1.05	1.03 – 1.07	.000	.051	.016	1.05	1.02 – 1.09	.001
Charge Number	-.005	.012	0.99	0.97 – 1.02	.659	-.102	.060	0.90	0.80 – 1.02	.091
Charge Severity	.038	.016	1.04	1.01 – 1.07	.019	.043	.027	1.04	0.99 – 1.10	.104
Length of Stay	-.001	.001	0.99	0.99 – 1.01	.359	.002	.002	1.00	0.99 – 1.00	.303
Violent Offender (y/n)	.154	.033	1.17	1.09 – 1.25	.000	.085	.059	1.09	0.97 – 1.22	.151
Re-Detained/Incarcerated (y/n)	.130	.035	1.14	1.06 – 1.22	.000	.037	.061	1.04	0.92 – 1.17	.536
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	1.262	.041	3.53	3.26 – 3.83	.000	.786	.071	2.20	1.91 – 2.52	.000
Non-Conduct Mental Disorder (y/n)	1.655	.048	5.23	4.76 – 5.74	.000	1.877	.102	6.53	5.35 – 7.97	.000
Substance-Related Disorder (y/n)	.526	.037	1.69	1.57 – 1.82	.000	1.178	.070	3.25	2.83 – 3.73	.000
Number of Disorders	-.004	.004	0.99	0.99 – 1.00	.327	.059	.004	1.06	1.05 – 1.07	.000
Pre-Detention Outpatient Treatment (y/n)	.779	.055	2.19	1.96 – 2.43	.000	.816	.111	2.26	1.83 – 2.81	.000
Pre-Detention Non-Outpatient Treatment (y/n)	-.207	.096	0.81	0.67 – 0.98	.031	.234	.158	1.26	0.93 – 1.72	.138

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level.

Table 3.67 Model Summary Statistics for Cox Regression Models Predicting Time to First Treatment: Cohort Two

Treatment Outcomes	Model Summary Statistics (N = 2341)				Change Statistics*		
	-2 LL	χ^2	df	p	χ^2	df	p
Post-Detention Treatment							
Stage 1	13799.56	141.68	3	.000	134.26	3	.000
Stage 2	13665.47	282.98	10	.000	134.09	7	.000
Stage 3	13046.73	1083.78	17	.000	618.74	7	.000
Post-Detention Mental Health Treatment							
Stage 1	11248.06	173.40	3	.000	165.89	3	.000
Stage 2	11121.68	307.19	10	.000	126.71	7	.000
Stage 3	10455.84	1123.79	17	.000	665.48	7	.000
Post-Detention Substance-Related Treatment							
Stage 1	5180.62	37.56	3	.000	35.21	3	.000
Stage 2	5111.88	108.62	10	.000	68.74	7	.000
Stage 3	4150.01	1093.20	17	.000	961.89	7	.000
Post-Detention Either/Both Treatment							
Stage 1	3978.07	83.66	3	.000	76.92	3	.000
Stage 2	3887.77	181.89	10	.000	90.24	7	.000
Stage 3	3079.81	1144.18	17	.000	807.58	7	.000
Post-Detention Outpatient Treatment							
Stage 1	13621.94	134.95	3	.000	128.61	3	.000
Stage 2	13494.50	268.75	10	.000	127.43	7	.000
Stage 3	12889.12	1054.11	17	.000	605.48	7	.000
Post-Detention Non-Outpatient Treatment							
Stage 1	1864.87	129.56	3	.000	107.24	3	.000
Stage 2	1793.53	208.64	10	.000	71.33	7	.000
Stage 3	1590.84	715.57	17	.000	202.69	7	.000

Note. N = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; p = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: Risk Assessment Inventory scores, number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: Positive Screen on Massachusetts Youth Screening Instrument-2nd Edition Positive Screen, conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.68 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Treatment and First Mental Health Treatment: Cohort Two

	Treatment Outcomes (N = 2341)									
	First Treatment Utilization					First Mental Health Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	-.108	.086	0.90	0.76 – 1.06	.211	-.135	.093	0.87	0.73 – 1.05	.149
Black (y/n)	-.199	.072	0.82	0.71 – 0.94	.006	-.224	.079	0.80	0.68 – 0.93	.005
Age	-.123	.025	0.88	0.84 – 0.93	.000	-.162	.028	0.85	0.81 – 0.90	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.015	.008	1.02	1.00 – 1.03	.067	.014	.009	1.01	1.00 – 1.03	.115
Charge Number	-.079	.059	0.92	0.82 – 1.04	.180	-.065	.065	0.94	0.82 – 1.06	.316
Charge Severity	-.011	.034	0.99	0.93 – 1.06	.754	.013	.038	1.01	0.94 – 1.09	.737
Length of Stay	.001	.002	1.00	1.00 – 1.01	.489	.001	.002	1.00	1.00 – 1.01	.673
Violent Offender (y/n)	.089	.069	1.10	0.96 – 1.25	.197	.060	.076	1.06	0.92 – 1.23	.432
Re-Detained/Incarcerated (y/n)	.281	.078	1.33	1.14 – 1.54	.000	.286	.088	1.33	1.12 – 1.58	.001
Risk Assessment Inventory Scores	.001	.009	1.00	0.98 – 1.02	.892	-.001	.010	1.00	0.98 – 1.02	.957
Stage 3: Mental Health Variables										
MAYSI-2 - Positive Screen (y/n)	.021	.071	1.02	0.89 – 1.17	.768	.055	.081	1.06	0.90 – 1.24	.498
Conduct Disorder (y/n)	.658	.088	1.93	1.62 – 2.30	.000	1.017	.106	2.76	2.25 – 3.40	.000
Non-Conduct Mental Disorder (y/n)	.741	.104	2.10	1.71 – 2.57	.000	1.445	.143	4.24	3.21 – 5.61	.000
Substance-Related Disorder (y/n)	.745	.072	2.11	1.83 – 2.43	.000	.100	.078	1.11	0.95 – 1.30	.203
Number of Disorders	.060	.008	1.06	1.05 – 1.08	.000	.072	.008	1.07	1.06 – 1.09	.000
Pre-Detention Outpatient (y/n)	-.308	.091	0.74	0.62 – 0.88	.001	-.458	.103	0.63	0.52 – 0.77	.000
Pre-Detention Non-Outpatient Treatment (y/n)	-.035	.092	0.97	0.81 – 1.16	.701	.011	.099	1.01	0.83 – 1.23	.915

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.69 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Substance-Related Treatment and First Either/Both Treatment: Cohort Two

	Treatment Outcomes (N = 2341)									
	First Substance-Related Treatment Utilization					First Either/Both Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.419	.170	1.52	1.09 – 2.12	.014	.474	.186	1.61	1.12 – 2.31	.011
Black (y/n)	-.174	.118	0.84	0.67 – 1.06	.140	-.323	.129	0.72	0.56 – 0.93	.012
Age	-.066	.043	0.94	0.86 – 1.02	.127	-.115	.049	0.89	0.81 – 0.98	.019
Stage 2: Criminal History Variables										
Number of Prior Arrests	.008	.013	1.01	0.98 – 1.04	.541	.020	.014	1.02	0.99 – 1.05	.145
Charge Number	-.115	.103	0.89	0.73 – 1.09	.266	.031	.115	1.03	0.82 – 1.29	.786
Charge Severity	-.050	.055	0.95	0.85 – 1.06	.362	.016	.064	1.02	0.90 – 1.15	.797
Length of Stay	.003	.003	1.00	1.00 – 1.01	.367	-.003	.004	0.99	0.98 – 1.02	.401
Violent Offender (y/n)	-.019	.117	0.98	0.78 – 1.23	.870	-.034	.134	0.97	0.74 – 1.26	.801
Re-Detained/Incarcerated (y/n)	.277	.123	1.32	1.04 – 1.68	.025	.430	.146	1.54	1.16 – 2.05	.003
Risk Assessment Inventory	.002	.016	1.00	0.97 – 1.03	.918	.025	.017	1.03	0.99 – 1.06	.150
Stage 3: Mental Health Variables										
MAYSI-2 Positive Screen (y/n)	.077	.117	1.08	0.86 – 1.36	.511	.004	.139	1.00	0.76 – 1.32	.980
Conduct Disorder (y/n)	-.207	.133	0.81	0.63 – 1.05	.118	.964	.210	2.62	1.74 – 3.96	.000
Non-Conduct Mental Disorder (y/n)	.146	.143	1.16	0.88 – 1.53	.306	.606	.202	1.83	1.23 – 2.72	.003
Substance-Related Disorder (y/n)	12.882	19.047	3.54	0.02 – 6.43	.499	12.138	20.986	8.92	0.06 – 12.39	.563
Number of Disorders	.057	.014	1.06	1.03 – 1.09	.000	.100	.012	1.11	1.08 – 1.13	.000
Pre-Detention Outpatient (y/n)	-.132	.134	0.88	0.67 – 1.14	.324	-.353	.157	0.70	0.52 – 0.96	.025
Pre-Detention Non-Outpatient Treatment (y/n)	-.504	.162	0.60	0.44 – 0.83	.002	-.438	.168	0.66	0.46 – 0.90	.009

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.70 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to First Outpatient Treatment and First Non-Outpatient Treatment: Cohort Two

	Treatment Outcomes (N = 2341)									
	First Outpatient Treatment Utilization					First Non-Outpatient Treatment Utilization				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	-.094	.087	0.91	0.77 – 1.08	.283	-.502	.201	0.61	0.41 – 0.90	.012
Black (y/n)	-.153	.073	0.86	0.74 – 0.99	.036	-.868	.185	0.42	0.29 – 0.60	.000
Age	-.129	.026	0.88	0.84 – 0.92	.000	-.254	.071	0.78	0.68 – 0.89	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.013	.008	1.01	0.99 – 1.03	.110	.066	.018	1.07	1.03 – 1.10	.000
Charge Number	-.087	.060	0.92	0.82 – 1.03	.145	-.080	.160	0.92	0.68 – 1.26	.619
Charge Severity	-.009	.034	0.99	0.93 – 1.06	.784	-.151	.091	0.86	0.72 – 1.03	.099
Length of Stay	.001	.002	1.00	0.99 – 1.01	.530	.004	.005	1.00	0.99 – 1.01	.457
Violent Offender (y/n)	.098	.069	1.10	0.96 – 1.26	.155	.097	.188	1.10	0.76 – 1.60	.604
Re-Detained/Incarcerated (y/n)	.262	.078	1.30	1.12 – 1.52	.001	.205	.223	1.23	0.79 – 1.90	.358
Risk Assessment Inventory Scores	.000	.009	1.00	0.98 – 1.02	.998	-.019	.023	0.98	0.94 – 1.03	.405
Stage 3: Mental Health Variables										
MAYSI-2 Positive Screen (y/n)	.004	.072	1.00	0.87 – 1.16	.955	.519	.243	1.68	1.04 – 2.70	.033
Conduct Disorder (y/n)	.671	.089	1.96	1.64 – 2.33	.000	.398	.268	1.49	0.88 – 2.52	.138
Non-Conduct Mental Disorder (y/n)	.728	.105	2.07	1.69 – 2.54	.000	1.355	.395	3.88	1.79 – 8.41	.001
Substance-Related Disorder (y/n)	.711	.072	2.03	1.77 – 2.35	.000	1.172	.221	3.23	2.09 – 4.98	.000
Number of Disorders	.062	.008	1.06	1.05 – 1.08	.000	.105	.014	1.11	1.08 – 1.14	.000
Pre-Detention Outpatient (y/n)	-.303	.091	0.74	0.63 – 0.88	.001	-.484	.267	0.62	0.37 – 1.04	.069
Pre-Detention Non-Outpatient Treatment (y/n)	-.049	.093	0.95	0.79 – 1.14	.602	-.074	.234	0.93	0.59 – 1.50	.751

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.71 Life Table: Time to Termination from Outpatient Treatment

	Number of Participants[a]	Number of Terminators[c]	Termination Rate[b]	Participants Surviving[c]	Probability of Termination[b]	Hazard Rate[b]
Time Interval	Number	Number	Proportion	Proportion (SD)	Probability (SD)	Rate (SD)
0 – 3.0 Months	6234	1656	.27	.73 (.01)	.089 (.002)	.10 (.00)
3.01 – 6.0 Months	4578	518	.11	.65 (.01)	.028 (.001)	.04 (.00)
6.01 – 9.0 Months	4060	373	.09	.59 (.01)	.020 (.001)	.03 (.00)
9.01 – 12.0 Months	3687	297	.08	.54 (.01)	.016 (.001)	.03 (.00)
12.01 – 15.0 Months	3390	260	.08	.50 (.01)	.014 (.001)	.03 (.00)
15.01 – 18.0 Months	3130	222	.07	.47 (.01)	.012 (.001)	.02 (.00)
18.01 – 21.0 Months	2908	204	.07	.43 (.01)	.011 (.001)	.02 (.00)
21.01 – 24.0 Months	2704	184	.07	.40 (.01)	.010 (.001)	.02 (.00)
2.01 – 2.5 Years	2520	164	.07	.38 (.01)	.009 (.00)	.02 (.00)
2.51 – 3.0 Years	2213	270	.12	.31 (.01)	.007 (.00)	.02 (.00)
3.01 – 3.5 Years	1943	216	.11	.28 (.01)	.006 (.00)	.02 (.00)
3.51 – 4.0 Years	1727	216	.13	.24 (.01)	.006 (.00)	.02 (.00)
4.01 – 4.5 Years	1511	201	.13	.21 (.01)	.005 (.00)	.02 (.00)
4.51 – 5.0 Years	1310	163	.12	.18 (.00)	.004 (.00)	.02 (.00)
5.01 – 5.5 Years	1147	142	.12	.16 (.00)	.004 (.00)	.03 (.00)
5.51 – 6.0 Years	1005	146	.15	.14 (.00)	.004 (.00)	.03 (.00)
6.01 – 6.5 Years	859	160	.19	.11 (.00)	.004 (.00)	.03 (.00)
6.51 – 7.0 Years	699	129	.18	.09 (.00)	.003 (.00)	.03 (.00)
7.01 – 7.5 Years	570	134	.24	.07 (.00)	.004 (.00)	.04 (.00)
7.51 – 8.0 Years	436	131	.30	.05 (.00)	.004 (.00)	.06 (.00)
8.01 – 8.5 Years	305	143	.47	.03 (.00)	.004 (.00)	.10 (.00)
8.51 – 9.0 Years	162	162	1.00	.00 (.00)	.004 (.00)	.33 (.00)

Note. SD = Standard deviation. [a] At start of time interval. [b] During time interval; [c] At end of time interval.

Table 3.72 Time to Termination from Outpatient Treatment: Demographic, Mental Health, and Criminal History Groups

		Outpatient Users	Non-Users (Censored Cases)	Time to Termination (in Days)		Survival Curve Indicators		
						Breslow/ Wilcoxon	Tarone-Ware	Log Rank
Variables	Categories/ Groups	Number (%)	Number (%)	Median (SD)	95% CI	χ^2, *p*-value	χ^2, *p*-value	χ^2, *p*-value
Total Sample	Any Treatment *N* = 9664	6234 (64.5%)	3430 (35.5%)	459.00 (15.25)	429.11 – 488.89	--	--	--
Treatment Type	Mental Health	4399 (70.6%)[a]	--	496.00 (18.34)	460.05 – 531.94	96.18, *p* < .001	97.40, *p* < .001	89.23, *p* < .001
	Substance-Related	1261(20.2%)[b]	--	273.00 (23.86)	226.24 – 319.76			
	Either/Both	574 (9.2%)[c]	--	758.00 (84.68)	592.03 – 923.97			
Gender	Male *n* = 6062	3722 (61.4%)	2340 (38.6%)	356.99 (14.13)	328.30 – 383.71	135.66, *p* < .001	165.85, *p* < .001	144.72, *p* < .001
	Female *n* = 3602	2512 (69.8%)	1090 (30.2%)	746.00 (37.79)	671.90 – 820.07			
Race	White *n* = 3367	2453 (72.9%)	914 (27.1%)	639.00 (32.15)	575.98 – 702.02	70.25, *p* < .001	72.37, *p* < .001	54.44, *p* < .001
	Black *n* = 3464	3364 (59.4%)	2303 (40.6%)	369.00 (17.20)	335.30 – 402.70			
Age Cohorts	Younger *n* = 2406	1767 (73.5%)[a]	639 (26.5%)	783.00 (36.96)	710.56 – 855.44	151.75, *p* < .001	128.77, *p* < .001	71.99, *p* < .001
	Mid-Age *n* = 3924	2613 (66.6%)[b]	1311 (33.4%)	438.00 (21.01)	396.82 – 479.18			
	Older *n* = 3334	1854 (55.6%)[c]	1480 (44.4%)	275.00 (16.92)	241.83 – 308.17			
MAYSI-2 Positive Screen	No MAYSI-2 *n* = 7132	4554 (63.9%)[a]	2578 (36.1%)	552.00 (23.68)	505.59 – 598.41	84.88, *p* < .001	154.39, *p* < .001	255.16, *p* < .001
	Non-positive *n* = 1758	1215 (19.5%)[b]	543 (30.9%)	244.00 (21.56)	201.74 – 286.26			
	Positive Screen *n* = 774	465 (60.1%)[c]	309 (39.9%)	398.00 (18.71)	361.34 – 434.66			

Table 3.72 Continued.

Disorder Type	Mental Disorder *n* = 3571	3023 (84.7%)[a]	548 (15.3%)	287.00 (15.14)	257.32 – 316.68	1197.91, *p* < .001	1185.34, *p* < .001	1044.54, *p* < .001
	Substance-Related *n* = 662	538 (81.3%)[b]	124 (3.6%)	56.00 (4.80)	46.60 – 65.41			
	Comorbid *n* = 2782	2673 (96.2%)[c]	109 (3.8%)	943.00 (30.75)	882.73 – 1003.27			
Pre-Detention Treatment	No treatment *n* = 7226	4399 (60.9%)	2827 (39.1%)	431.00 (2163)	388.60 – 473.40	4.72, *p* < .001	11.32, *p* < .001	31.85, *p* < .001
	Treatment *n* = 2438	1835 (75.3%)	603 (24.7%)	503.00 (19.10)	465.56 – 540.44			
Violent Offender	No *n* = 6122	3872 (63.2%)	2250 (36.8%)	431.00 (18.51)	394.72 – 467.28	12.85, *p* < .001	17.34, *p* < .001	20.77, *p* < .001
	Yes *n* = 3542	2362 (66.7%)	1180 (33.3%)	519.00 (28.88)	462.41 – 575.59			
Recidivist	No *n* = 3263	1821 (55.8%)	1442 (44.2%)	342.00 (19.98)	302.85 – 381.15	42.11, *p* < .001	34.84, *p* < .001	22.70, *p* < .001
	Yes *n* = 6401	4413 (69.0%)	1986 (31.0%)	544.00 (19.10)	506.56 – 581.44			
Re-Detained/ Incarcerated	No *n* = 4358	2439 (56.0%)	1919 (44.0%)	343.00 (19.99)	303.81 – 382.19	37.74, *p* < .001	31.90, *p* < .001	21.08, *p* < .001
	Yes *n* = 5306	3795 (71.5%)	1511 (28.5%)	532.00 (18.85)	505.05 – 578.95			

Note. *n* = Number; % = Percentage; χ^2 = Chi-square test; *p*-value = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. Different superscripts indicate significant differences ($p \leq .01$) and matching superscripts indicate non-significant differences ($p > .01$) based upon 2 x 2 chi-square tests between paired groups.

Table 3.73 Model Summary Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment

Treatment Outcomes	Model Summary Statistics (N = 5791)				Change Statistics*		
	-2 LL	χ^2	df	p	χ^2	df	p
Termination from Outpatient Treatment							
Stage 1	85491.09	352.67	3	.000	353.28	3	.000
Stage 2	85363.46	507.83	9	.000	127.63	6	.000
Stage 3	84518.45	1303.67	15	.000	845.01	6	.000
Termination from Mental Health Outpatient Treatment							
Stage 1	57535.00	204.17	3	.000	204.47	3	.000
Stage 2	57438.39	318.43	9	.000	96.68	6	.000
Stage 3	56760.72	1056.42	15	.000	677.57	6	.000
Termination from Substance-Related Outpatient Treatment							
Stage 1	13594.70	154.62	3	.000	156.29	3	.000
Stage 2	13569.51	180.62	9	.000	25.19	6	.000
Stage 3	13489.14	244.58	14	.000	80.36	5	.000
Termination from Either/Both Outpatient Treatment							
Stage 1	5458.00	27.83	3	.000	27.58	3	.000
Stage 2	5429.33	61.27	9	.000	28.77	6	.000
Stage 3	5287.74	216.68	15	.000	141.98	6	.000

Note. N = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; p = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.74 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment and from Mental Health Outpatient Treatment

	Treatment Outcomes (N = 5791)									
	Termination from Outpatient Treatment					Termination from Mental Health Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.295	.029	1.34	1.27 – 1.42	.000	.226	.035	1.25	1.17 – 1.34	.000
Black (y/n)	.034	.028	1.04	0.98 – 1.09	.222	.050	.033	1.05	0.99 – 1.12	.135
Age	.063	.009	1.06	1.04 – 1.08	.000	.045	.010	1.05	1.03 – 1.07	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.040	.005	1.04	1.03 – 1.05	.000	.044	.006	1.05	1.03 – 1.06	.000
Charge Number	-.006	.008	0.99	0.98 – 1.01	.445	-.011	.010	0.99	0.96 – 1.01	.277
Charge Severity	.041	.014	1.04	1.01 – 1.07	.003	.028	.017	1.03	0.99 – 1.06	.097
Length of Stay	.000	.001	1.00	0.99 – 1.00	.704	.000	.001	1.00	0.99 – 1.00	.906
Violent Offender (y/n)	-.061	.029	0.94	0.89 – 0.99	.034	-.061	.034	0.94	0.88 – 1.01	.071
Re-Detained/Incarcerated (y/n)	.037	.029	1.04	0.98 – 1.20	.207	.064	.034	1.07	0.99 – 1.14	.061
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.177	.034	1.19	1.12 – 1.28	.000	.139	.043	1.15	1.06 – 1.25	.001
Non-Conduct Mental Disorder (y/n)	-.520	.041	0.59	0.55 – 0.65	.000	-.878	.064	0.42	0.37 – 0.47	.000
Substance-Related Disorder (y/n)	-.107	.031	0.90	0.85 – 0.95	.001	-.063	.039	0.96	0.87 – 1.10	.111
Number of Disorders	-.060	.004	0.94	0.91 – 0.97	.000	-.063	.004	0.94	0.93 – 0.96	.000
Pre-Detention Outpatient Treatment (y/n)	.414	.038	1.51	1.40 – 1.63	.000	.460	.045	1.58	1.45 – 1.73	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.232	.055	1.26	1.13 – 1.40	.000	.281	.064	1.32	1.17 – 1.50	.000

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.75 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Substance-Related Outpatient Treatment and from Either/Both Outpatient Treatment

	Treatment Outcomes (N = 5791)									
	Termination from Substance-Related Outpatient Treatment					Termination from Either/Both Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.546	.068	1.73	1.51 – 1.97	.000	.151	.105	1.16	0.95 – 1.42	.150
Black (y/n)	.068	.065	1.07	0.94 – 1.22	.301	-.057	.095	0.95	0.78 – 1.14	.550
Age	.111	.020	1.12	1.08 – 1.16	.000	.122	.030	1.13	1.07 – 1.20	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.034	.009	1.04	1.03 – 1.05	.000	.033	.014	1.03	1.01 – 1.06	.020
Charge Number	.146	.063	1.16	1.02 – 1.31	.021	.070	.092	1.07	0.90 – 1.28	.447
Charge Severity	.078	.031	1.08	1.02 – 1.15	.012	.081	.049	1.08	0.99 – 1.20	.096
Length of Stay	.001	.002	1.01	0.99 – 1.01	.785	-.004	.004	0.99	0.99 – 1.01	.341
Violent Offender (y/n)	-.020	.066	0.98	0.86 – 1.12	.759	-.003	.099	1.00	0.82 – 1.21	.978
Re-Detained/Incarcerated (y/n)	.051	.067	1.05	0.92 – 1.20	.447	-.132	.098	0.88	0.72 – 1.06	.178
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	-.072	.081	0.93	0.79 – 1.09	.377	.169	.119	1.18	0.94 – 1.49	.155
Non-Conduct Mental Disorder (y/n)	-.148	.081	0.86	0.74 – 1.01	.068	-.930	.176	0.40	0.28 – 0.55	.000
Substance-Related Disorder (y/n)	-.058	.011	0.94	0.92 – 0.96	.000	1.493	1.014	4.45	0.61 – 12.51	.141
Number of Disorders	-.058	.011	0.94	0.91 – 0.96	.000	-.067	.009	0.94	0.93 – 0.96	.000
Pre-Detention Outpatient Treatment (y/n)	.293	.096	1.34	1.11 – 1.62	.002	.636	.127	1.89	1.47 – 2.42	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.118	.144	1.13	0.85 – 1.49	.414	.139	.169	1.15	0.83 – 1.60	.410

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.76 Model Summary Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment: Cohort One

Treatment Outcomes	Model Summary Statistics (N = 4484)				Change Statistics*		
	-2 LL	χ^2	df	p	χ^2	df	p
Termination from Outpatient Treatment							
Stage 1	59379.69	119.50	3	.000	119.04	3	.000
Stage 2	59340.99	159.41	9	.000	38.69	6	.000
Stage 3	58818.68	664.30	15	.000	522.38	6	.000
Termination from Mental Health Outpatient Treatment							
Stage 1	40506.09	77.50	3	.000	77.02	3	.000
Stage 2	40484.73	99.45	9	.000	21.32	6	.002
Stage 3	40027.27	642.83	15	.000	457.62	6	.000
Termination from Substance-Related Outpatient Treatment							
Stage 1	9475.39	72.63	3	.000	72.27	3	.000
Stage 2	9455.30	92.08	9	.000	20.04	6	.003
Stage 3	9406.62	132.01	14	.000	48.63	5	.000
Termination from Either/Both Outpatient Treatment							
Stage 1	3135.98	4.90	3	.175	4.90	3	.176
Stage 2	3126.26	14.59	9	.104	9.71	6	.137
Stage 3	3061.33	86.45	14	.000	64.25	5	.000

Note. N = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; p = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.77 Predictors in Cox Regression Analyses Associated with Increased Risk (+) and Decreased Risk (–) of Time to Termination from Outpatient Treatment: Total Sample, Cohort One, and Cohort Two

	Termination from Outpatient Treatment											
	Any Outpatient			Mental Health Outpatient			Substance-Related Outpatient			Either/Both Outpatient		
Predictor Variables	Total[a]	1[b]	2[c]	Total	1	2	Total	1	2	Total	1	2
Demographic Variables												
Male (y/n)	+	+		+	+	+	+	+	+			
Black (y/n)												
Age	+		+	+		+	+	+	+	+	+	+
Criminal History Variables												
Number of Prior Arrests	+	+	+	+	+	+	+	+		+		
Charge Number							+					
Charge Severity	+		+				+					
Length of Stay											–	+
Violent Offender (y/n)	–	–										
Re-Detained/Incarcerated (y/n)												
RAI Scores	NA	NA		NA	NA	--	NA	NA		NA	NA	
Mental Health Variables												
MAYSI-2 – Positive Screen (y/n)	NA	NA		NA	NA		NA	NA		NA	NA	
Conduct Disorder (y/n)	+	+		+	+		–					
Non-Conduct Mental Disorder (y/n)	–	–	–	–	–	–	–			–	–	–
Substance-Related Disorder (y/n)	–	–	–			--	–	–	–			
Number of Disorders	–	–	–	–	–	–	–	–	–	–	–	–
Pre-Detention Outpatient Treatment (y/n)	+	+	+	+	+	+	+			+		
Pre-Detention Non-Outpatient Treatment (y/n)	+		+	+		+						

Note. NA = Not applicable because predictor excluded from analysis; Total = Total Sample; 1 = Cohort One; 2 = Cohort Two; (+) = Increased Risk; (–) = Decreased Risk; RAI = Risk Assessment Inventory; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. [a] N = 5791. [b] N = 4484. [c] N = 1307.

Table 3.78 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment and from Mental Health Outpatient Treatment: Cohort One

	Treatment Outcomes (N = 4484)									
	Termination from Outpatient Treatment					Termination from Mental Health Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.238	.034	1.27	1.19 – 1.36	.000	.170	.041	1.19	1.09 – 1.29	.000
Black (y/n)	-.027	.032	0.97	0.91 – 1.04	.403	-.008	.038	0.99	0.92 – 1.07	.836
Age	.009	.010	1.01	0.99 – 1.03	.346	-.017	.012	0.98	0.96 – 1.01	.156
Stage 2: Criminal History Variables										
Number of Prior Arrests	.037	.009	1.04	1.02 – 1.06	.000	.024	.010	1.35	1.01 – 1.55	.017
Charge Number	-.009	.009	0.99	0.97 – 1.01	.338	-.013	.011	0.99	0.97 – 1.01	.246
Charge Severity	.016	.016	1.02	0.98 – 1.05	.318	-.001	.020	0.99	0.96 – 1.04	.973
Length of Stay	-.002	.001	0.99	0.99 – 1.01	.098	-.001	.001	1.00	0.99 – 1.00	.346
Violent Offender (y/n)	-.070	.033	0.93	0.87 – 0.99	.036	-.056	.039	0.95	0.88 – 1.02	.155
Re-Detained/Incarcerated (y/n)	.053	.034	1.06	0.90 – 1.13	.117	.068	.040	1.00	0.99 – 1.16	.089
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	.147	.039	1.16	1.07 – 1.25	.000	.101	.049	1.11	1.01 – 1.22	.039
Non-Conduct Mental Disorder (y/n)	-.478	.048	0.62	0.56 – 0.68	.000	-.914	.076	0.40	0.35 – 0.47	.000
Substance-Related Disorder (y/n)	-.090	.037	0.91	0.85 – 0.98	.015	.005	.048	1.01	0.92 – 1.10	.913
Number of Disorders	-.057	.004	0.95	0.94 – 0.96	.000	-.063	.005	0.94	0.93 – 0.96	.000
Pre-Detention Outpatient Treatment (y/n)	.183	.055	1.20	1.08 – 1.34	.001	.227	.062	1.25	1.11 – 1.41	.000
Pre-Detention Non-Outpatient Treatment (y/n)	.128	.096	1.14	0.94 – 1.37	.185	.125	.112	1.13	0.91 – 1.41	.265

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level.

Table 3.79 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Substance-Related Outpatient Treatment and from Either/Both Outpatient Treatment: Cohort One

	Treatment Outcomes (N = 4484)									
	Termination from Substance-Related Outpatient Treatment					Termination from Either/Both Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.468	.076	1.60	1.38 – 1.85	.000	.079	.127	1.08	0.84 – 1.29	.535
Black (y/n)	.014	.076	1.01	0.87 – 1.18	.854	-.058	.120	0.94	0.75 – 1.29	.632
Age	.065	.023	1.07	1.02 – 1.12	.004	.091	.037	1.10	1.02 – 1.18	.015
Stage 2: Criminal History Variables										
Number of Prior Arrests	.064	.019	1.07	1.03 – 1.11	.001	.051	.034	1.055	0.98 – 1.13	.136
Charge Number	.139	.073	1.15	0.99 – 1.33	.056	.047	.131	1.05	0.81 – 1.35	.722
Charge Severity	.067	.036	1.07	0.99 – 1.15	.063	.053	.065	1.05	0.93 – 1.20	.420
Length of Stay	-.002	.003	0.99	0.96– 1.00	.358	-.014	.005	0.98	0.97 – 0.99	.007
Violent Offender (y/n)	-.081	.079	0.92	0.79 – 1.08	.303	.041	.123	1.04	0.82 – 1.33	.739
Re-Detained/Incarcerated (y/n)	.089	.078	1.09	0.94 – 1.27	.253	-.092	.128	0.91	0.71 – 1.17	.469
Stage 3: Mental Health Variables										
Conduct Disorder (y/n)	-.085	.097	0.92	0.76 – 1.11	.383	-.116	.151	0.89	0.66 – 1.20	.444
Non-Conduct Mental Disorder (y/n)	-.126	.094	0.88	0.73 – 1.06	.178	-1.228	.281	0.29	0.17 – 0.51	.000
Substance-Related Disorder (y/n)	-.105	.037	0.90	0.84 – 0.97	.007	.047	.023	1.007	0.92 – 1.11	.881
Number of Disorders	-.050	.012	0.95	0.93 – 0.98	.000	-.051	.011	0.95	0.93 – 0.97	.000
Pre-Detention Outpatient Treatment (y/n)	.117	.137	1.13	0.86 – 1.47	.395	.266	.241	1.31	0.81 – 2.10	.270
Pre-Detention Non-Outpatient Treatment (y/n)	.110	.238	1.12	0.70 – 1.78	.643	.342	.348	1.41	0.71 – 2.78	.326

Note. N = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; p = Significance level.

Table 3.80 Model Summary Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment: Cohort Two

Treatment Outcomes	Model Summary Statistics (N = 1307)				Change Statistics*		
	-2 LL	χ^2	df	p	χ^2	df	p
Termination from Outpatient Treatment							
Stage 1	16954.88	361.69	3	.000	361.90	3	.000
Stage 2	16940.98	376.48	10	.000	13.86	7	.053
Stage 3	16572.96	710.42	17	.000	368.23	7	.000
Termination from Mental Health Outpatient Treatment							
Stage 1	10783.55	205.82	3	.000	203.35	3	.000
Stage 2	10777.94	211.89	10	.000	5.61	7	.586
Stage 3	10556.31	411.29	17	.000	221.63	7	.000
Termination from Substance-Related Outpatient Treatment							
Stage 1	2510.60	99.70	3	.000	104.30	3	.000
Stage 2	2503.55	104.73	10	.000	7.05	7	.423
Stage 3	2444.63	154.39	16	.000	58.91	6	.000
Termination from Either/Both Outpatient Treatment							
Stage 1	1344.52	38.23	3	.175	38.18	3	.176
Stage 2	1330.78	53.73	10	.000	13.74	7	.056
Stage 3	1279.61	97.26	16	.000	51.17	6	.000

Note. N = Number; -2 LL = -2 Log Likelihood; df = Degrees of freedom; χ^2 = Chi-square test; p = Significance level. * Results based on the addition of predictors for the individual Stage, compared to previous Stage. Stage 1 includes the following demographic predictor variables: gender, race, and age. Stage 2 includes the following criminal history predictor variables: Risk Assessment Inventory scores, number of prior arrests, number of charges at detention entry, charge severity, length of stay, and violent offender (y/n). Stage 3 includes the following mental health predictor variables: Positive screen on Massachusetts Youth Screening Instrument-2nd Edition, conduct disorder (y/n), non-conduct mental disorder (y/n), substance-related disorder (y/n), number of disorders, pre-detention outpatient treatment (y/n), and pre-detention non-outpatient treatment (y/n).

Table 3.81 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Outpatient Treatment and from Mental Health Outpatient Treatment: Cohort Two

	Treatment Outcomes (*N* = 1307)									
	Termination from Outpatient Treatment					Termination from Mental Health Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.122	.073	1.13	0.98 – 1.21	.095	.170	.084	1.19	1.01 – 1.40	.044
Black (y/n)	.107	.062	1.11	0.98 – 1.26	.083	.119	.076	1.13	0.97 – 1.31	.116
Age	.311	.019	1.37	1.31 – 1.42	.000	.267	.022	1.63	1.25 – 1.36	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.016	.007	1.02	1.00 – 1.03	.020	.019	.009	1.02	1.00 – 1.04	.034
Charge Number	.087	.055	1.09	0.98 – 1.21	.114	.059	.066	1.06	0.93 – 1.21	.371
Charge Severity	.087	.029	1.09	1.03 – 1.16	.003	.053	.036	1.05	0.98 – 1.13	.143
Length of Stay	.003	.002	1.00	0.99– 1.01	.057	.001	.002	1.00	0.99 – 1.01	.529
Violent Offender (y/n)	-.049	.059	0.95	0.85 – 1.07	.402	-.043	.070	0.96	0.83 – 1.10	.537
Re-Detained/Incarcerated (y/n)	-.011	.064	0.99	0.87 – 1.12	.859	.040	.074	1.04	0.89 – 1.20	.595
Risk Assessment Inventory Scores	-.012	.008	0.98	0.97 – 1.00	.117	-.018	.009	0.98	0.97 – 0.99	.045
Stage 3: Mental Health Variables										
MAYSI-2 - Positive Screen (y/n)	-.070	.061	0.93	0.83 – 1.05	.255	-.036	.076	0.96	0.83 – 1.12	.635
Conduct Disorder (y/n)	-.096	.073	0.91	0.79 – 1.05	.186	.080	.103	1.08	0.88 – 1.32	.440
Non-Conduct Mental Disorder (y/n)	-.629	.087	0.53	0.45 – 0.63	.000	-.803	.132	0.45	0.35 – 0.58	.000
Substance-Related Disorder (y/n)	-.384	.059	0.68	0.61 – 0.77	.000	-.403	.075	0.67	0.58 – 0.78	.000
Number of Disorders	-.093	.008	0.91	0.90 – 0.93	.000	-.084	.010	0.92	0.90 – 0.94	.000
Pre-Detention Outpatient (y/n)	.174	.072	1.19	1.03 – 1.27	.016	.312	.093	1.37	1.14 – 1.64	.001
Pre-Detention Non-Outpatient Treatment (y/n)	.272	.077	1.31	1.13 – 1.53	.000	.338	.091	1.43	1.18 – 1.68	.000

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio*;* CI = Confidence interval*; p* = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

Table 3.82 Hazard Ratios and Associated Statistics for Cox Regression Models Predicting Time to Termination from Substance-Related Outpatient Treatment and from Either/Both Outpatient Treatment: Cohort Two

	Treatment Outcomes (N = 1307)									
	Termination from Substance-Related Outpatient Treatment					Termination from Either/Both Outpatient Treatment				
Predictor Variables	Beta	SE	HR	95% CI	*p*	Beta	SE	HR	95% CI	*p*
Stage 1: Demographic Variables										
Male (y/n)	.442	.206	1.56	1.04 – 2.33	.032	.264	.267	1.30	0.77 – 2.20	.323
Black (y/n)	-.039	.145	0.96	0.72 – 1.28	.789	-.373	.200	0.69	0.47 – 1.02	.061
Age	.388	.049	1.47	1.34 – 1.62	.000	.415	.067	1.52	1.33 – 1.73	.000
Stage 2: Criminal History Variables										
Number of Prior Arrests	.014	.014	1.01	0.99 – 1.04	.346	-.029	.021	0.97	0.93 – 1.01	.156
Charge Number	.106	.139	1.11	0.85 – 1.46	.444	-.118	.146	0.88	0.68 – 1.18	.419
Charge Severity	.091	.069	1.01	0.96 – 1.26	.189	.148	.088	1.16	0.98 – 1.38	.093
Length of Stay	.008	.004	1.01	0.99 – 1.02	.079	.012	.005	1.02	1.01 – 1.03	.022
Violent Offender (y/n)	-.011	.141	0.98	0.75 – 1.30	.938	-.160	.217	0.85	0.56 – 1.31	.463
Re-Detained/Incarcerated (y/n)	.028	.144	1.03	0.78 – 1.37	.845	.178	.185	1.19	0.83 – 1.72	.337
Risk Assessment Inventory Scores	-.018	.022	0.98	0.94 – 1.03	.409	.024	.023	1.02	0.98 – 1.07	.313
Stage 3: Mental Health Variables										
MAYSI-2 Positive Screen (y/n)	.176	.143	1.19	0.90 – 1.58	.219	-.104	.186	0.90	0.63 – 1.30	.575
Conduct Disorder (y/n)	-.301	.161	0.74	0.54 – 1.02	.062	-.044	.301	0.96	0.53 – 1.73	.883
Non-Conduct Mental Disorder (y/n)	-.188	.178	0.83	0.58 – 1.17	.290	-.654	.255	0.52	0.32 – 0.86	.010
Substance-Related Disorder (y/n)	.392	2.00	0.78	0.44 – 0.93	.001	-.256	1.25	1.50	0.04 – 6.61	.595
Number of Disorders	-.116	.027	0.89	0.85 – 0.94	.000	-.105	.025	0.90	0.86 – 0.94	.000
Pre-Detention Outpatient (y/n)	.050	.172	1.05	0.75 – 1.47	.773	.387	.201	1.47	0.99 – 2.19	.054
Pre-Detention Non-Outpatient Treatment (y/n)	.261	.227	1.30	0.83 – 2.02	.250	-.188	.236	0.83	0.52 – 1.32	.425

Note. *N* = Number; Beta = Unstandardized beta weight; SE = Standard error; HR = Hazard ratio; CI = Confidence interval; *p* = Significance level; MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition.

FIGURES

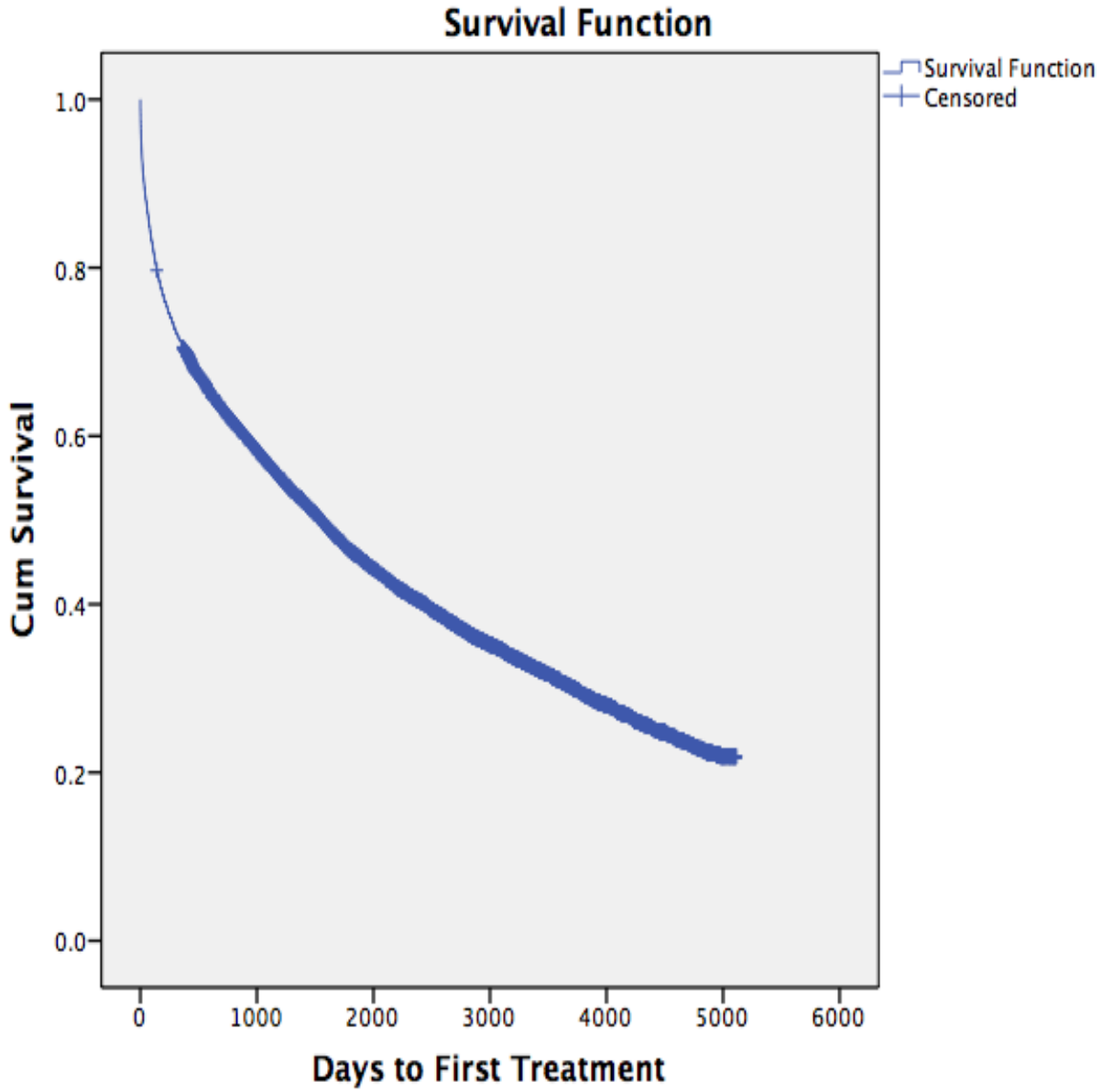

Figure 3.1 Survival Curve: Total Sample. Survival curve for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664). Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival function is the survival curve for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

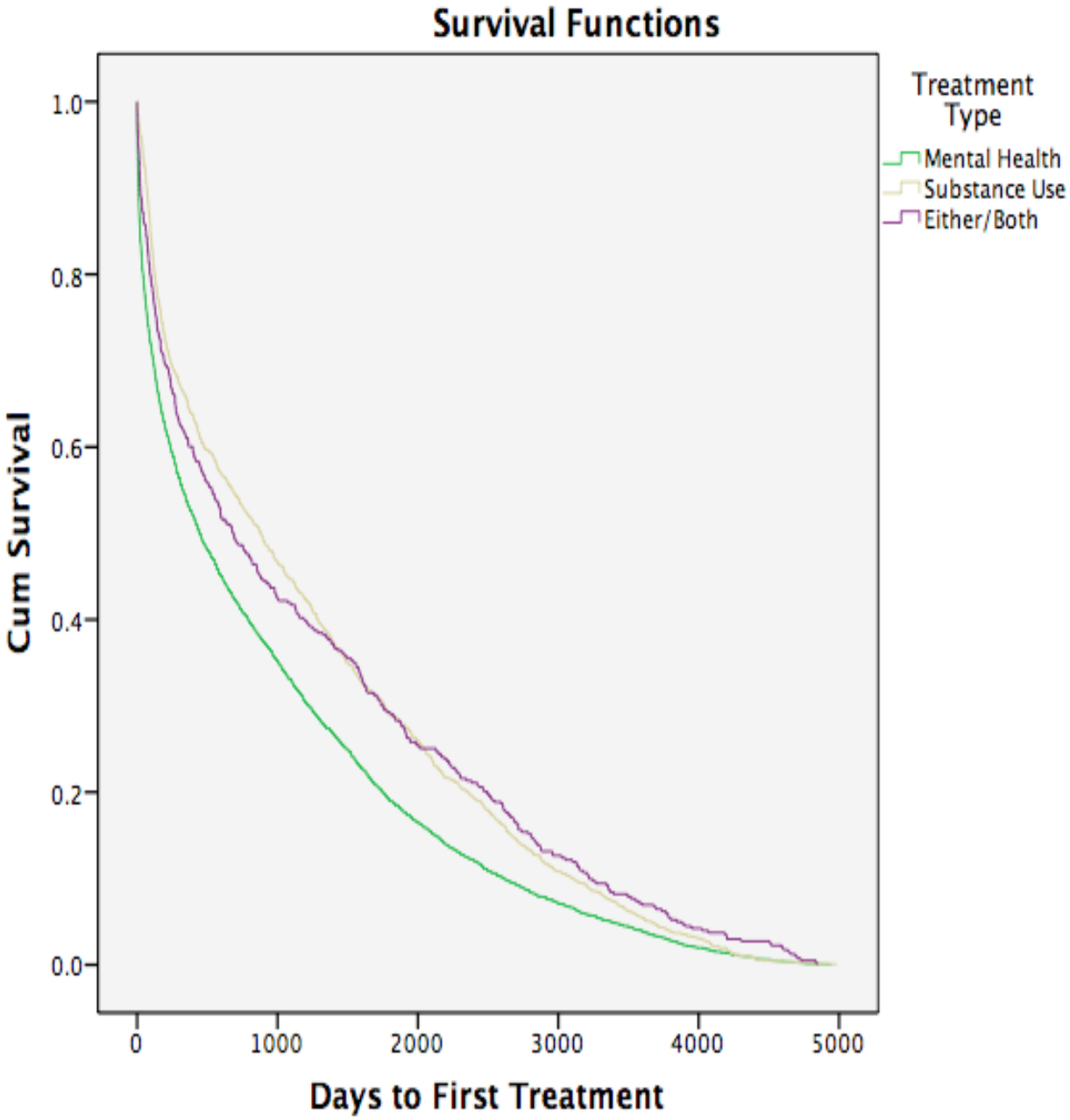

Figure 3.2 Survival Curve: Treatment Type. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among treatment users (N = 6437), divided by treatment type. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment.

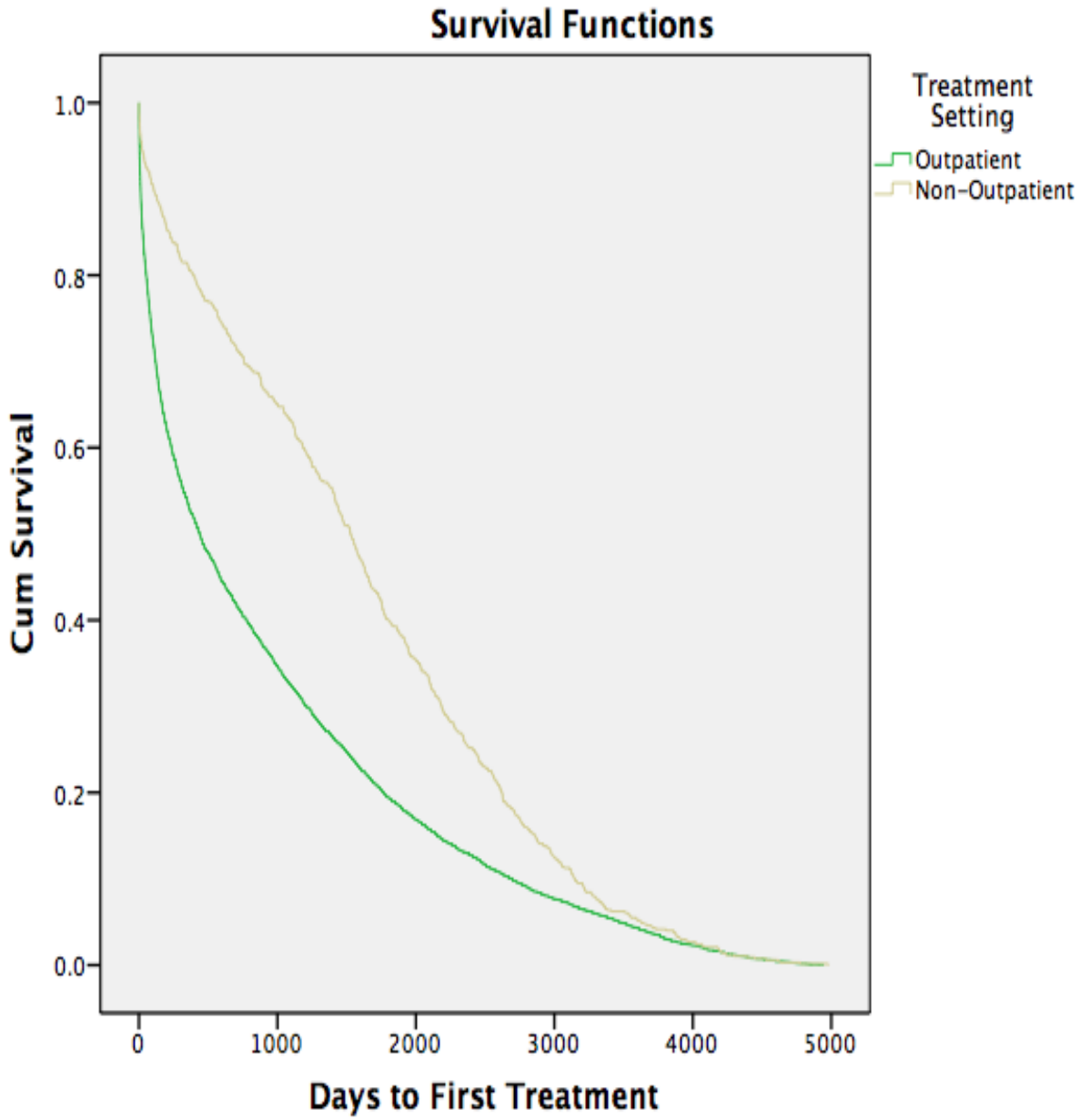

Figure 3.3 Survival Curve: Treatment Setting. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among treatment users (N = 6437), divided by treatment setting. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment.

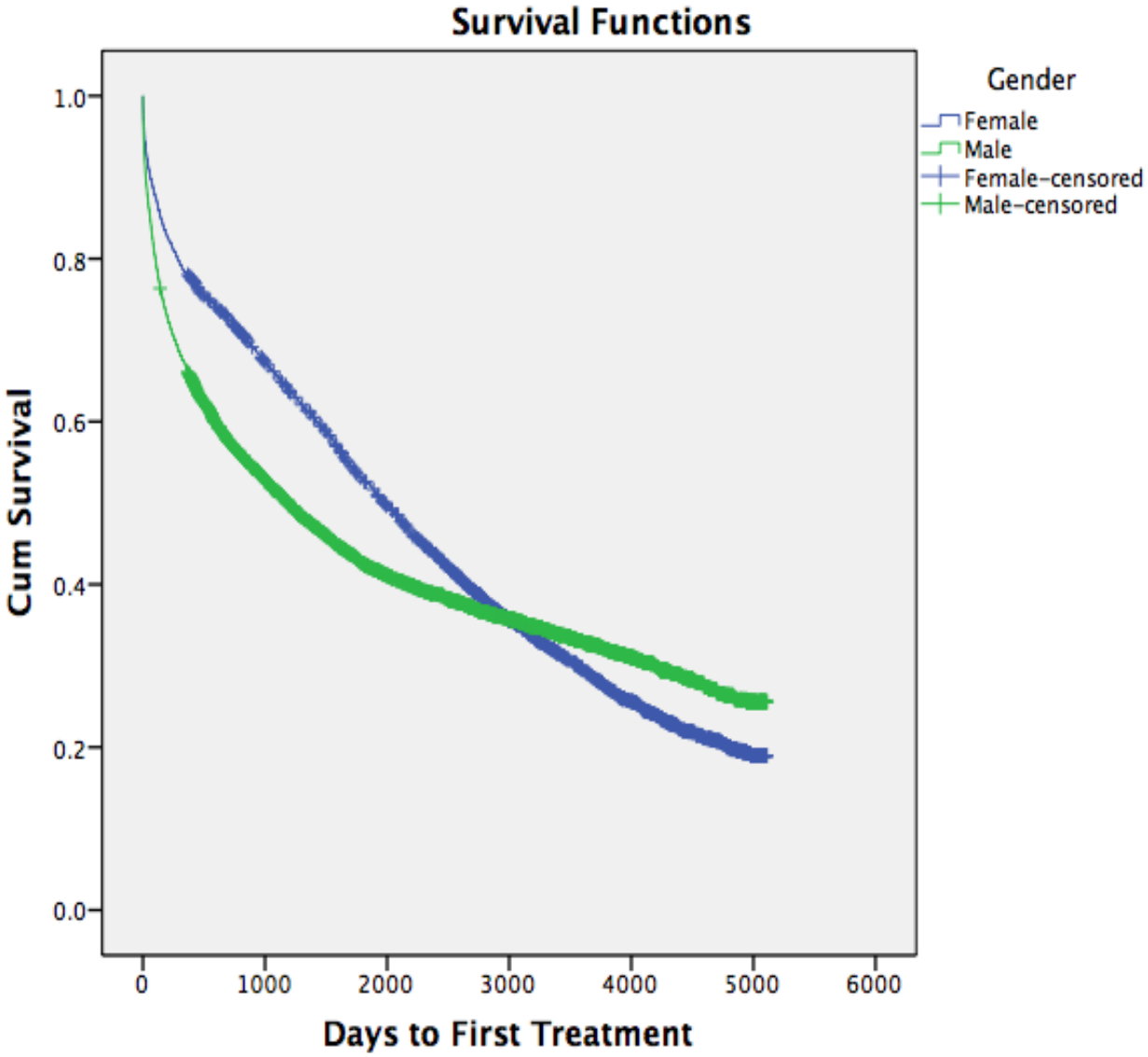

Figure 3.4 Survival Curve: Gender. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by gender. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users to the end of the study time frame.

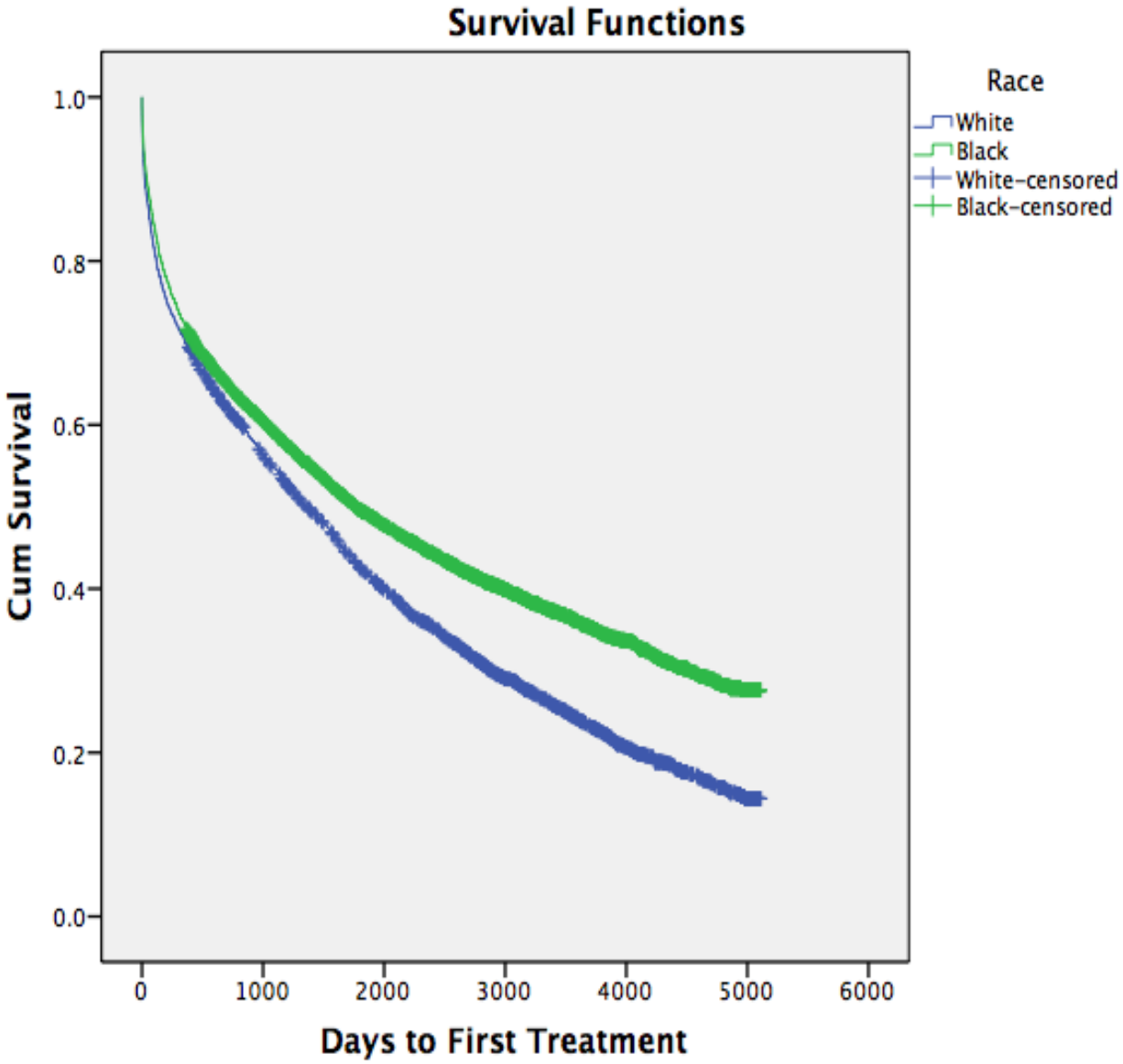

Figure 3.5 Survival Curve: Race. Survival curves for time (in days) to treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9034), divided by racial groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

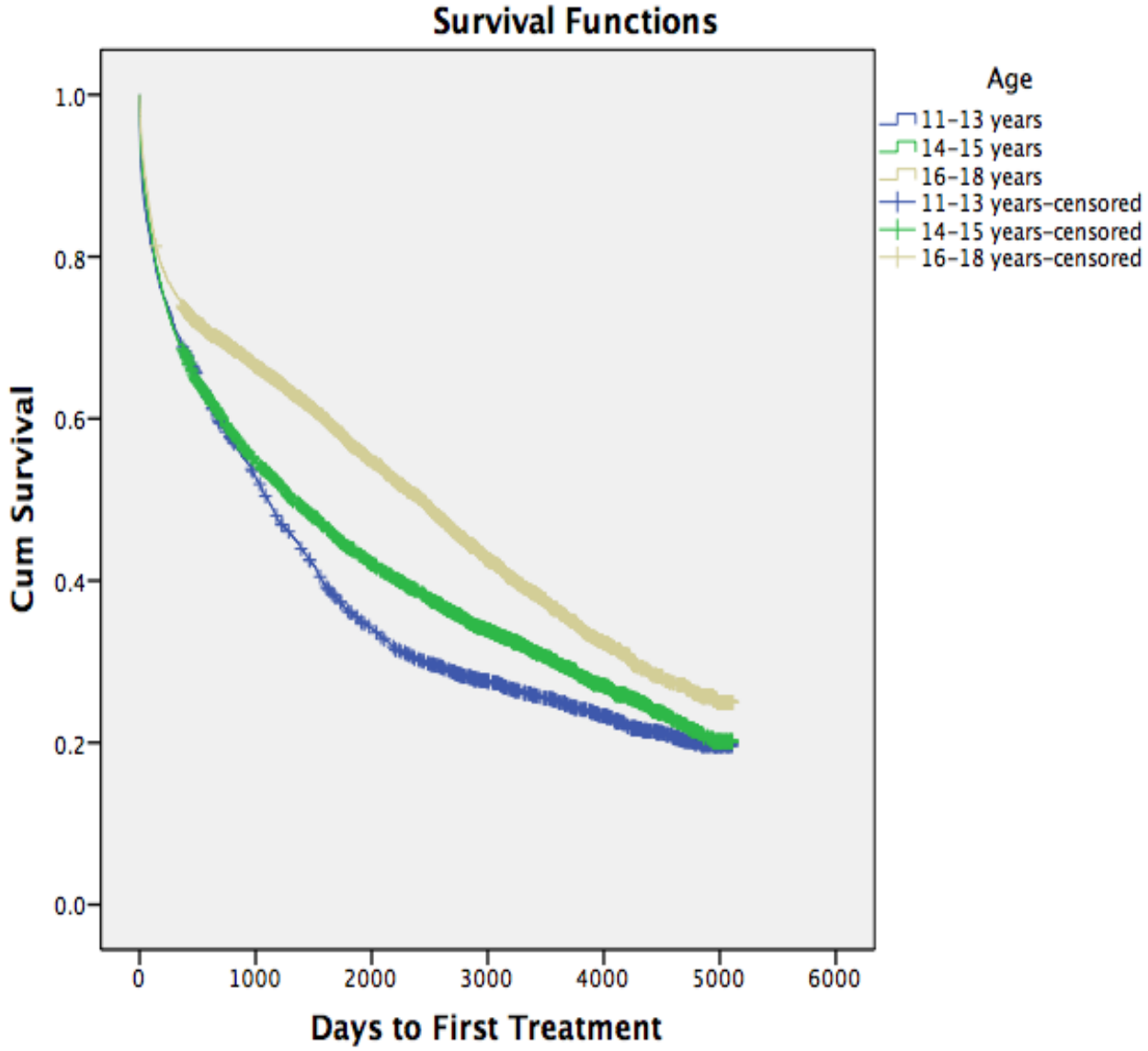

Figure 3.6 Survival Curve: Age Cohorts. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by age cohorts. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

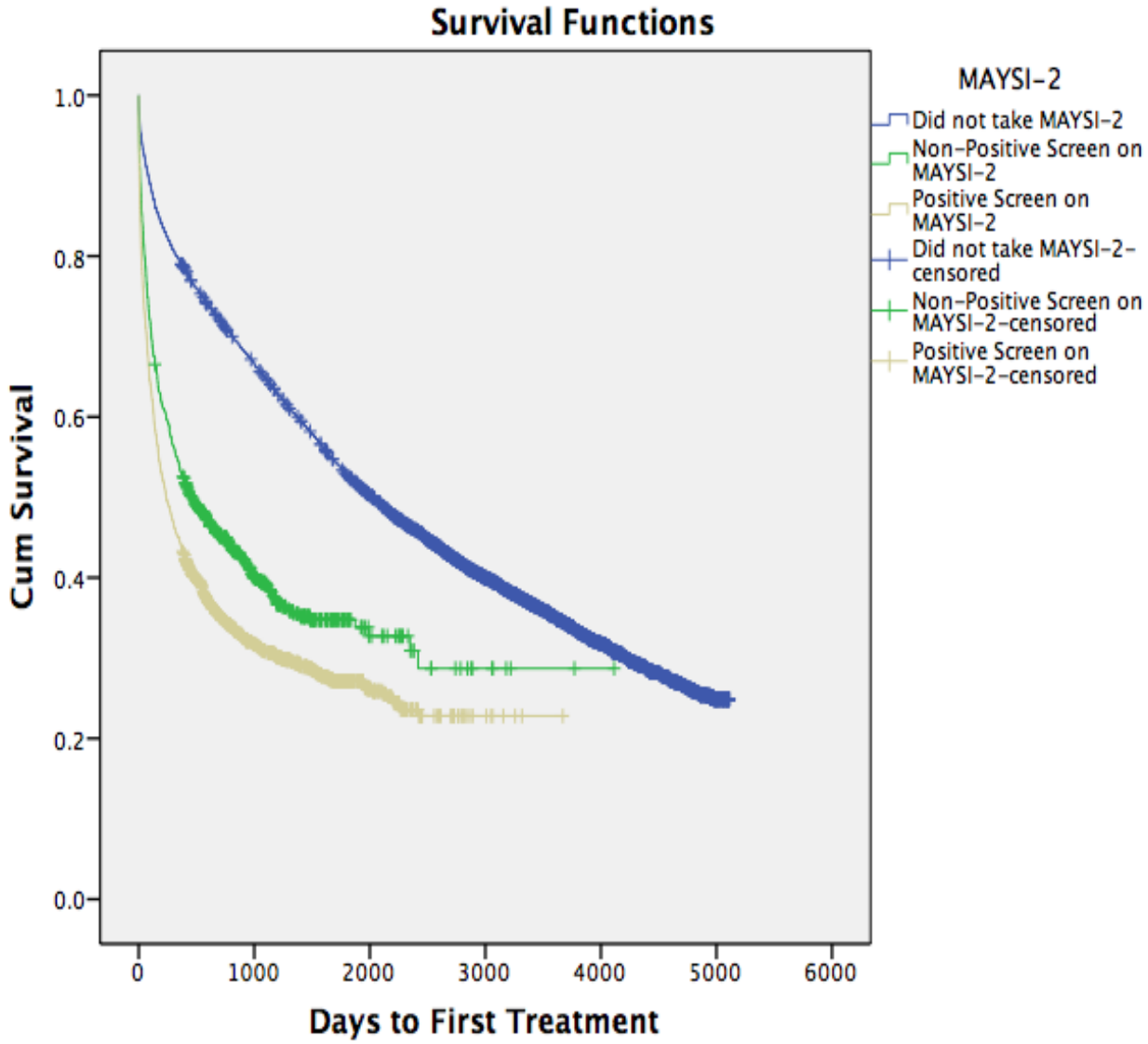

Figure 3.7 Survival Curve: MAYSI-2. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by MAYSI-2 groups. MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

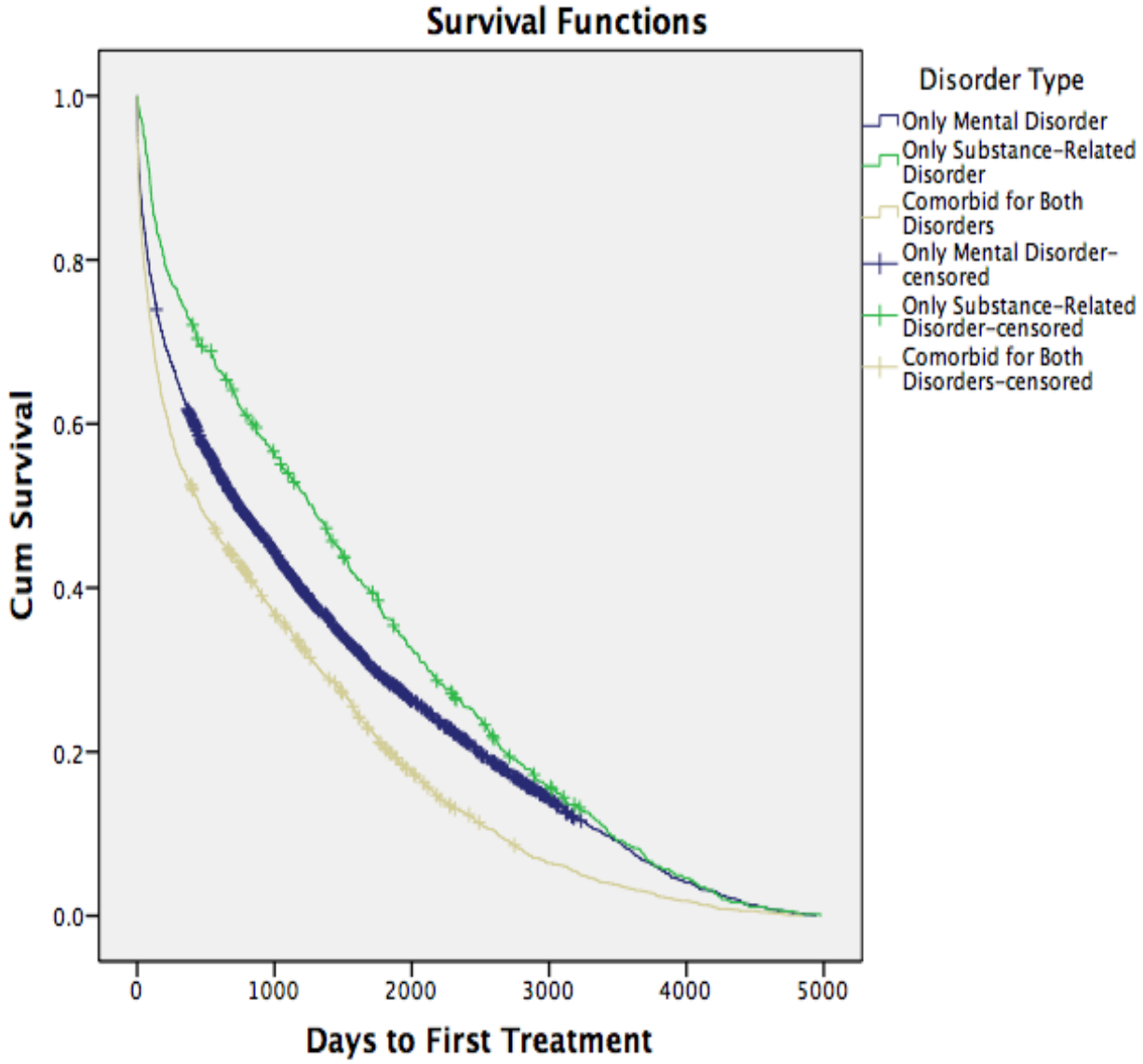

Figure 3.8 Survival Curve: Disorder Type. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among participants with disorders (N = 7015), divided by disorder type. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

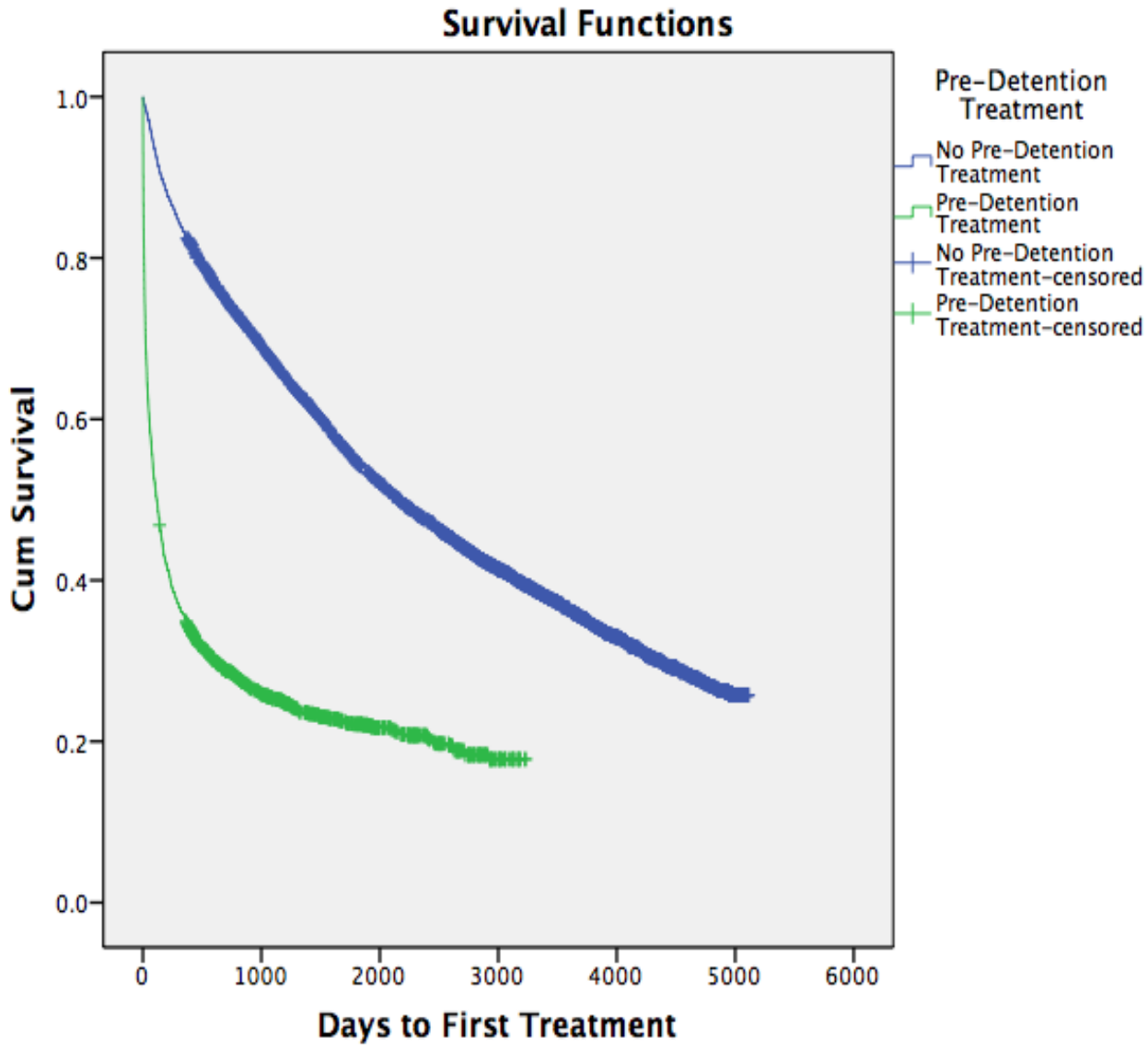

Figure 3.9 Survival Curve: Pre-Detention Treatment. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by pre-detention treatment groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

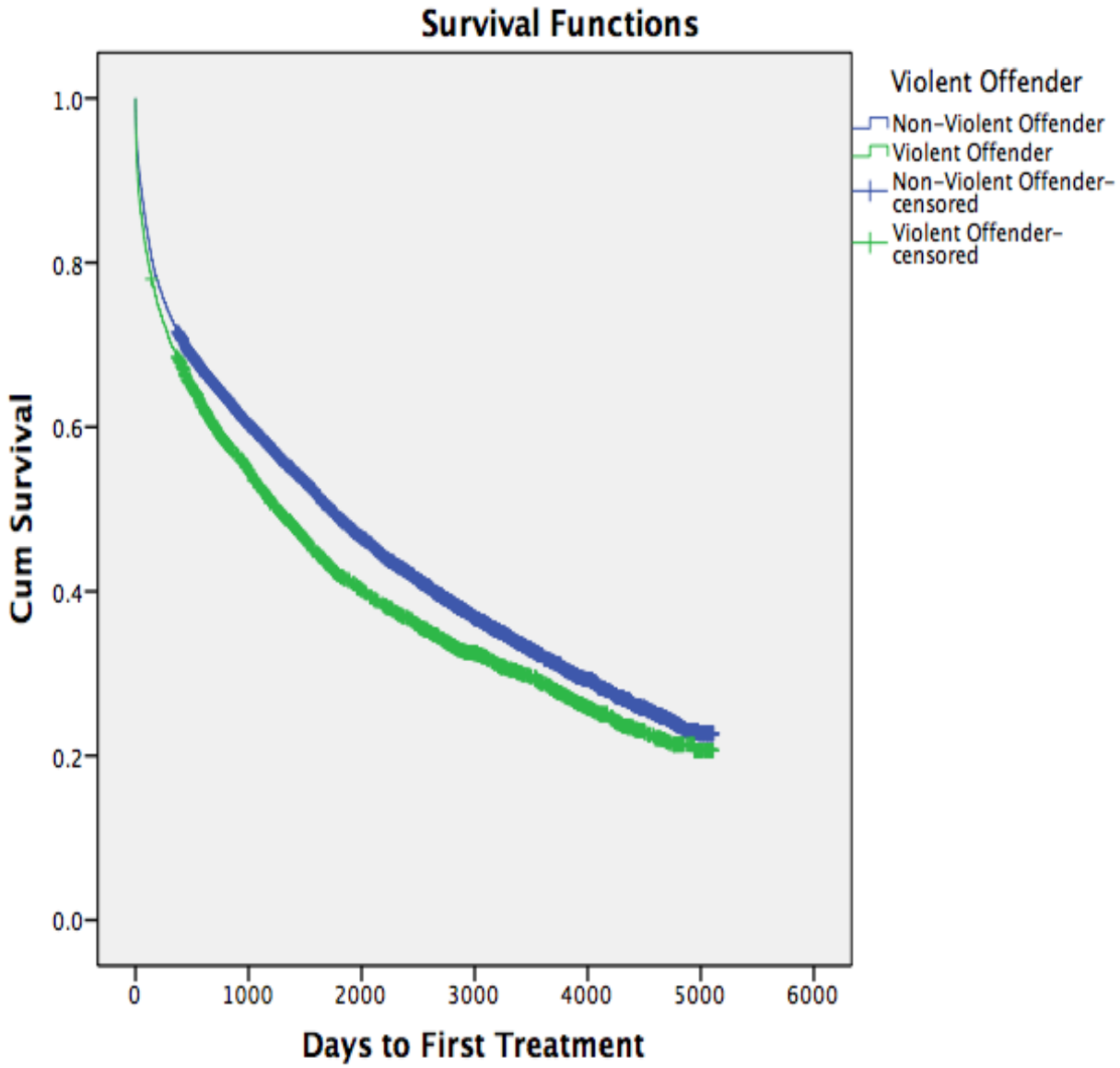

Figure 3.10 Survival Curve: Violent Offender. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by violent offender groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

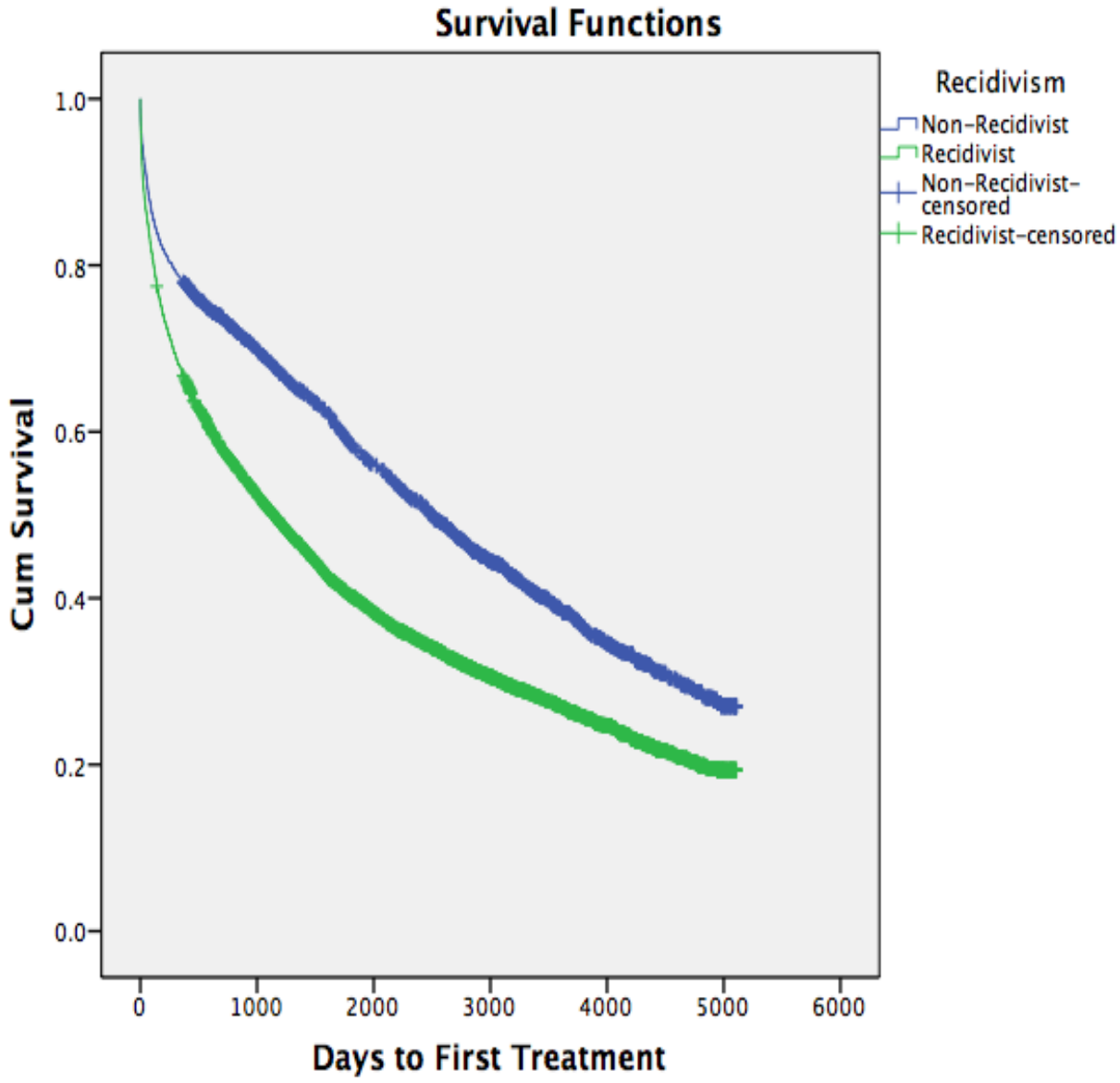

Figure 3.11 Survival Curve: Recidivism. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by recidivism groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

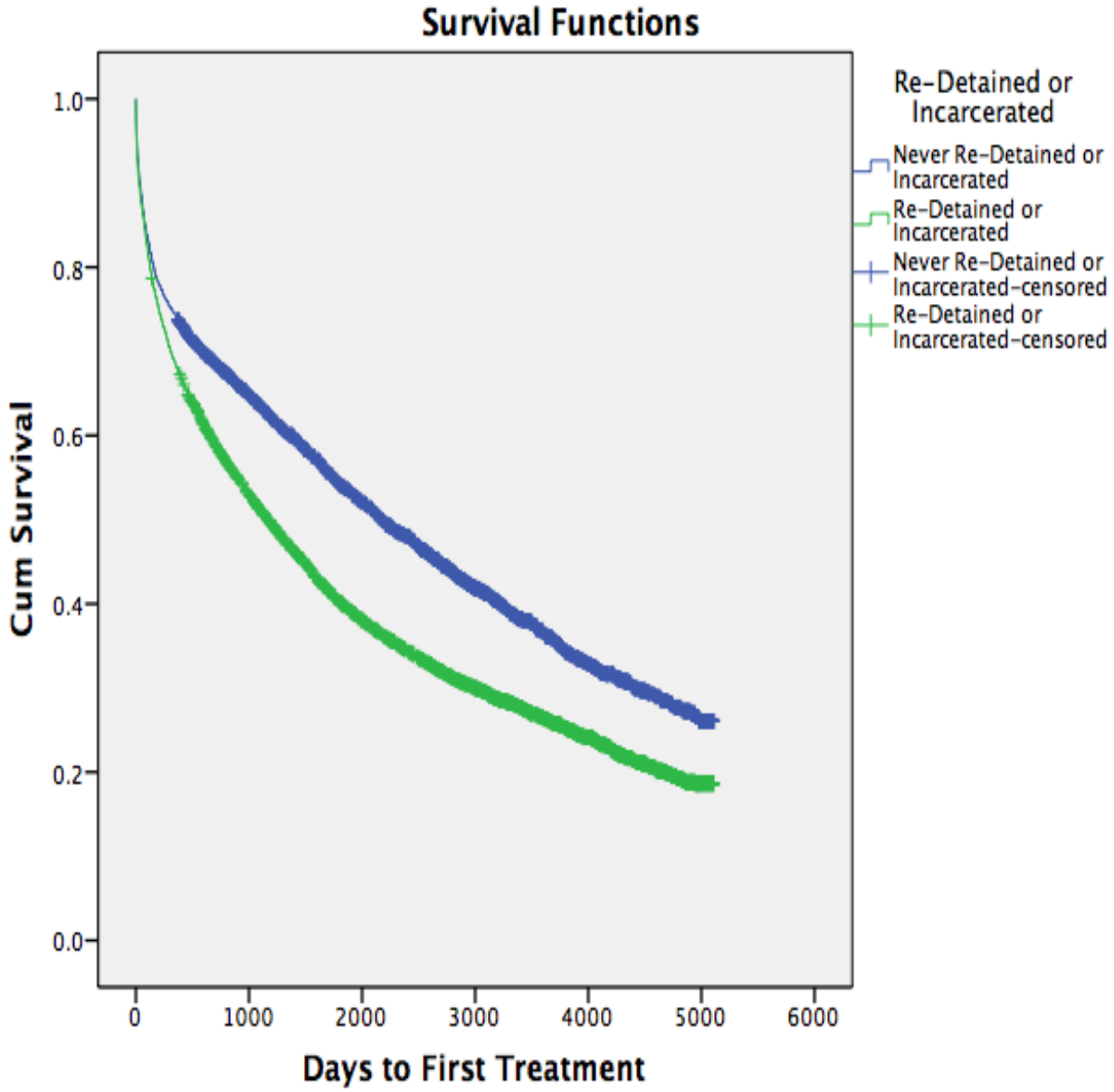

Figure 3.12 Survival Curve: Re-Detained. Survival curves for time (in days) to first treatment from detention release (i.e., day 0) to treatment utilization among all participants (N = 9664), divided by re-detained/incarcerated groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

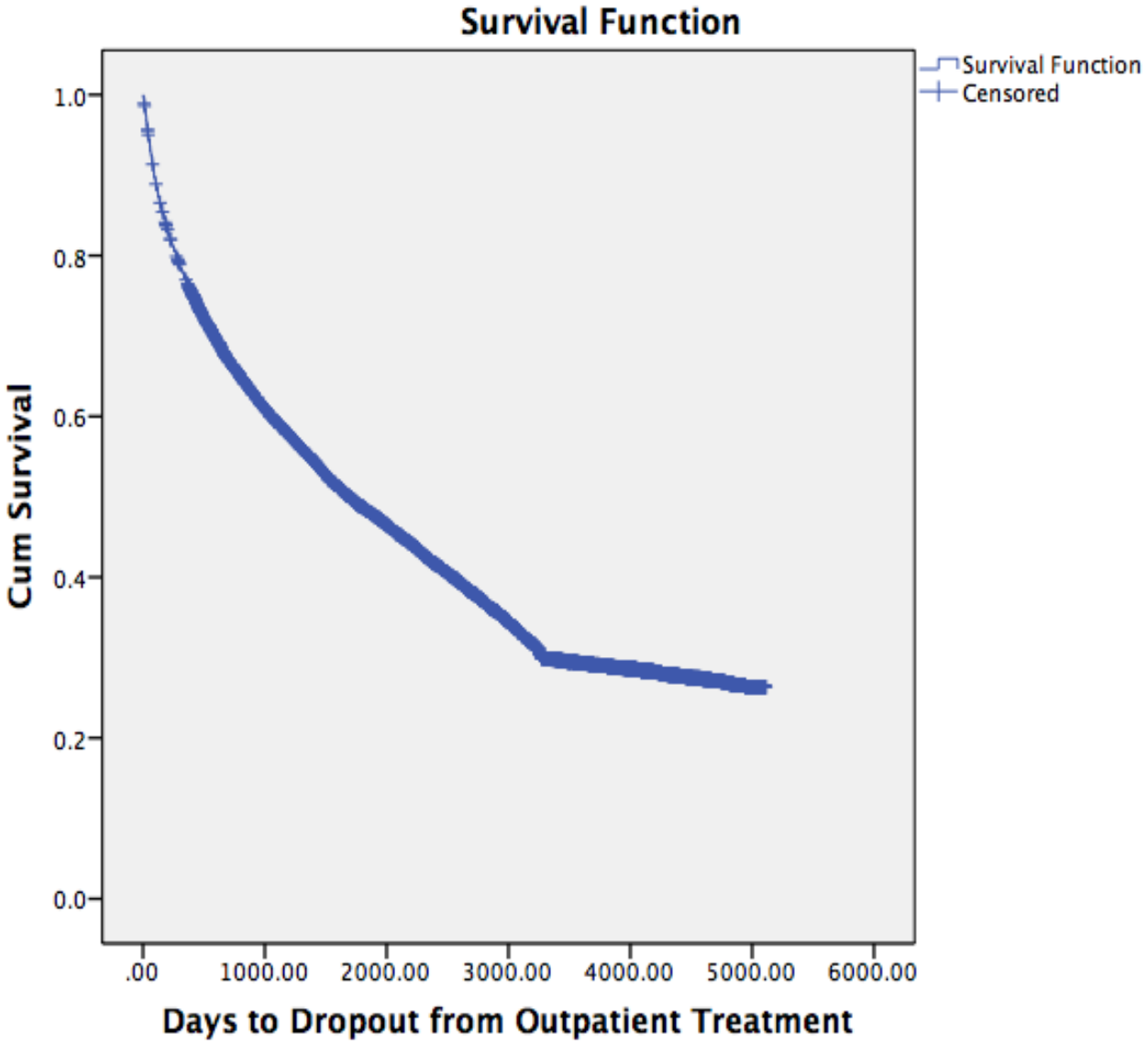

Figure 3.13 Survival Curve for Treatment Termination: Total Sample. Survival curve for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

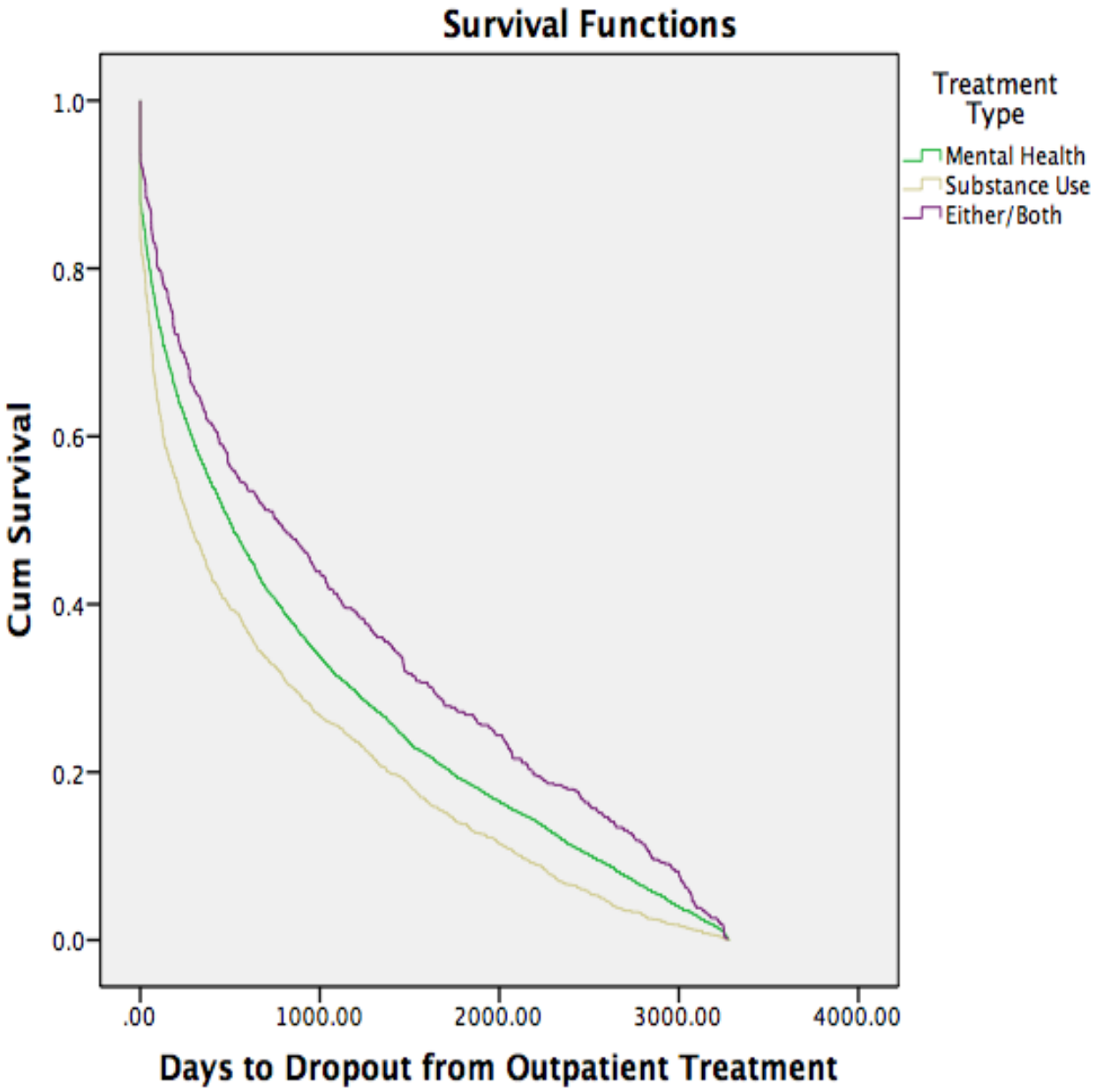

Figure 3.14 Survival Curve for Treatment Termination: Treatment Type. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among outpatient treatment users (N = 6234). Survival curves are divided by treatment type. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment.

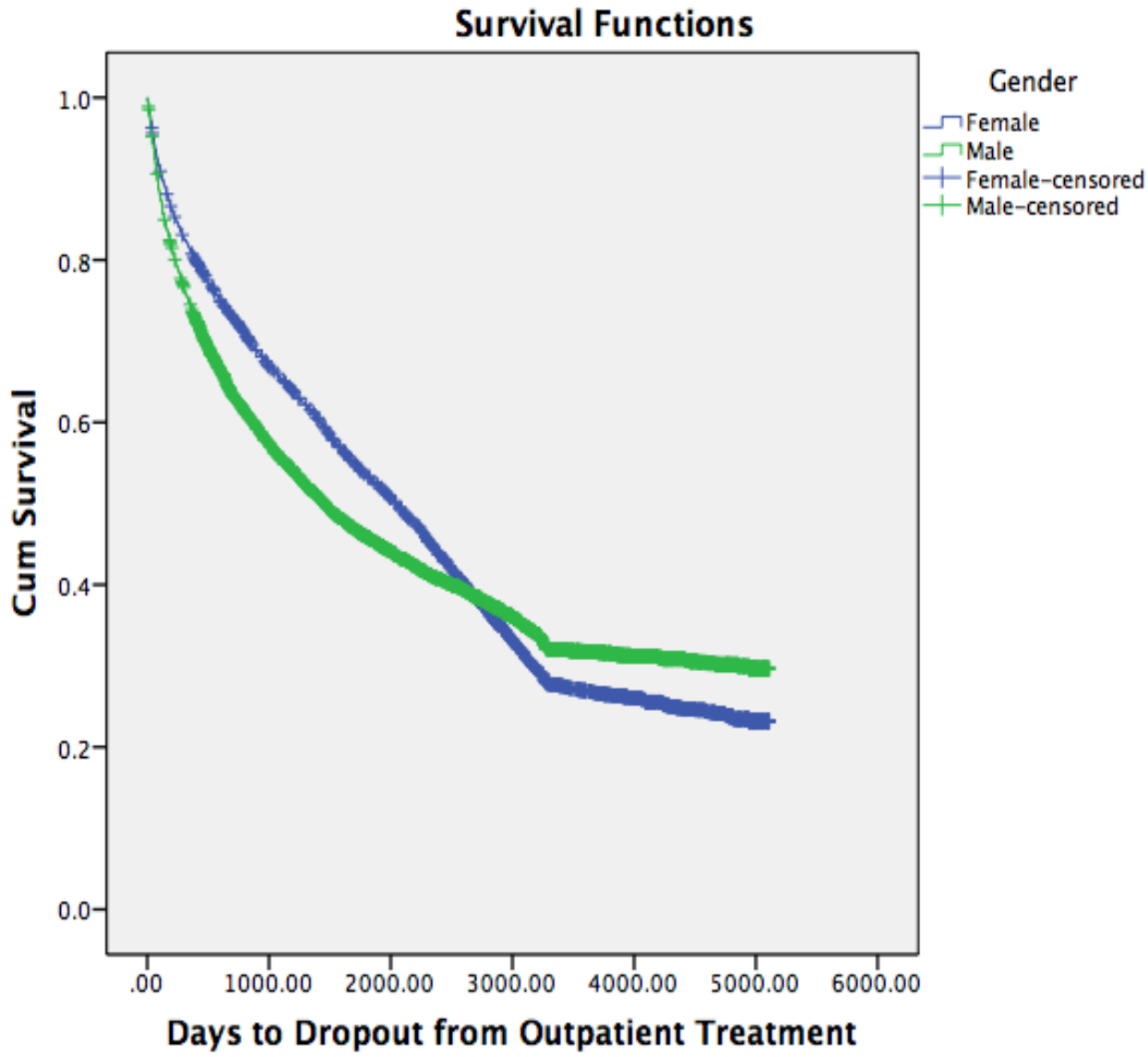

Figure 3.15 Survival Curve for Treatment Termination: Gender. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by gender. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

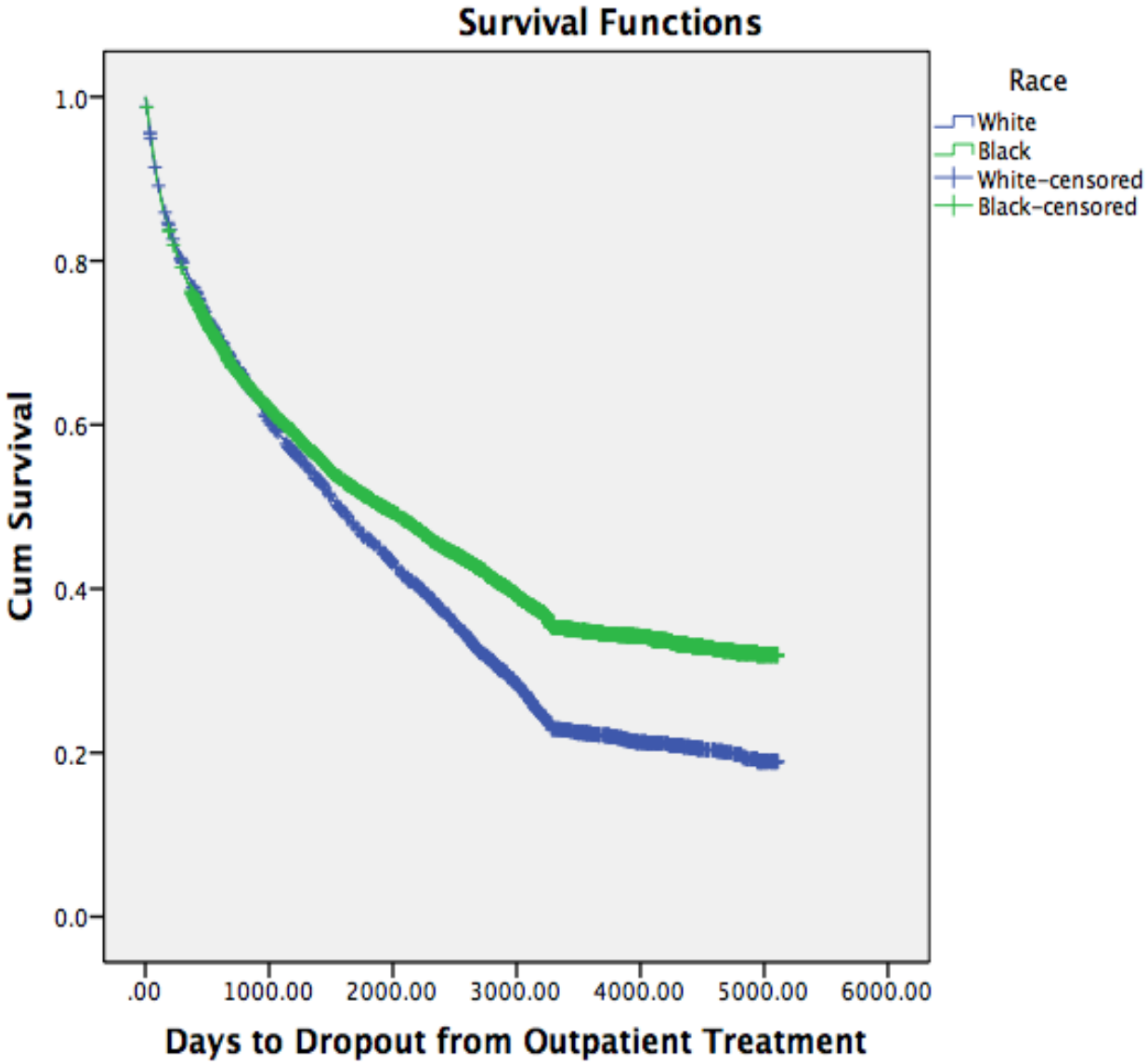

Figure 3.16 Survival Curve for Treatment Termination: Race. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by racial groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

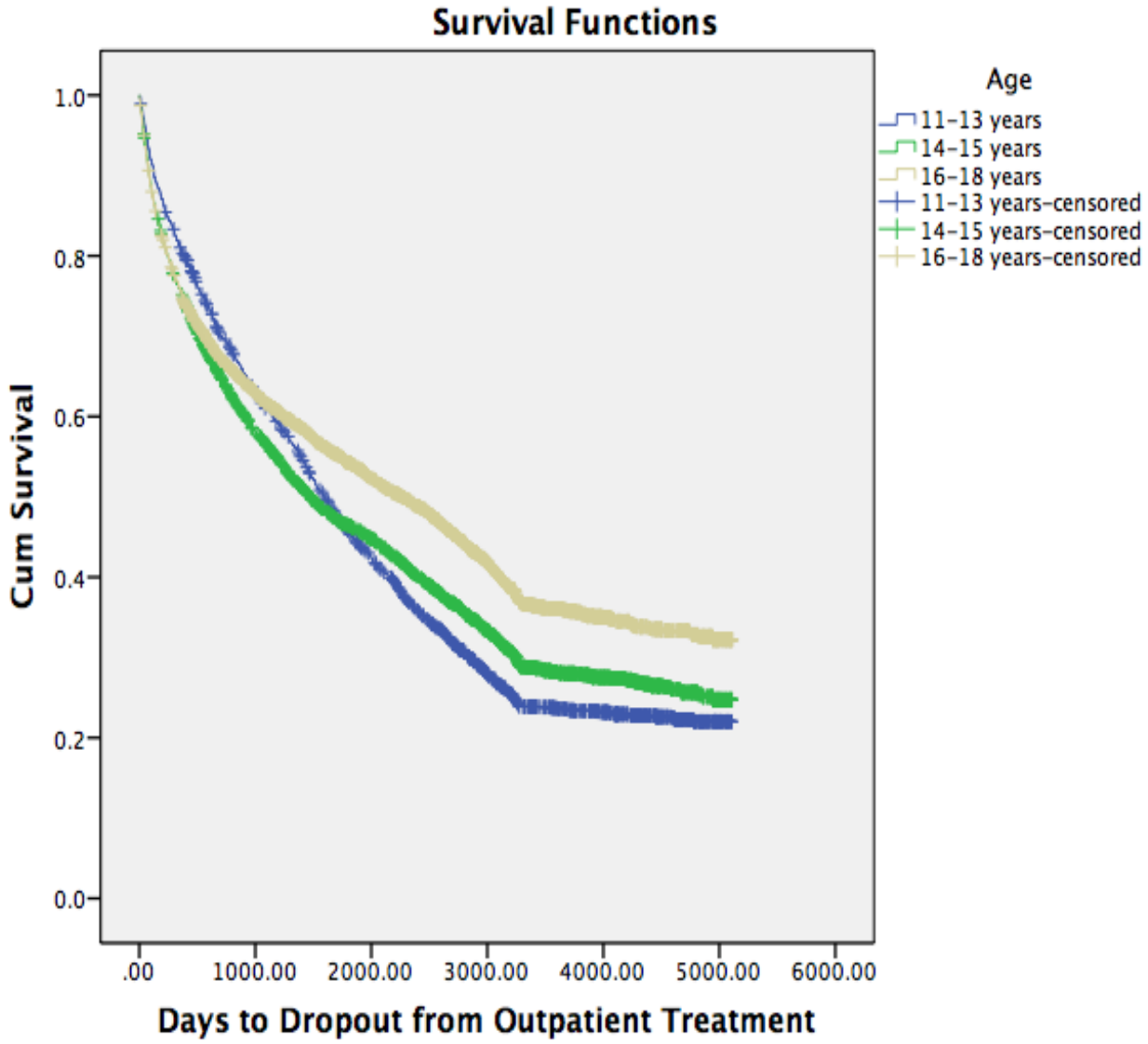

Figure 3.17 Survival Curve for Treatment Termination: Age Cohorts. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by age cohorts. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

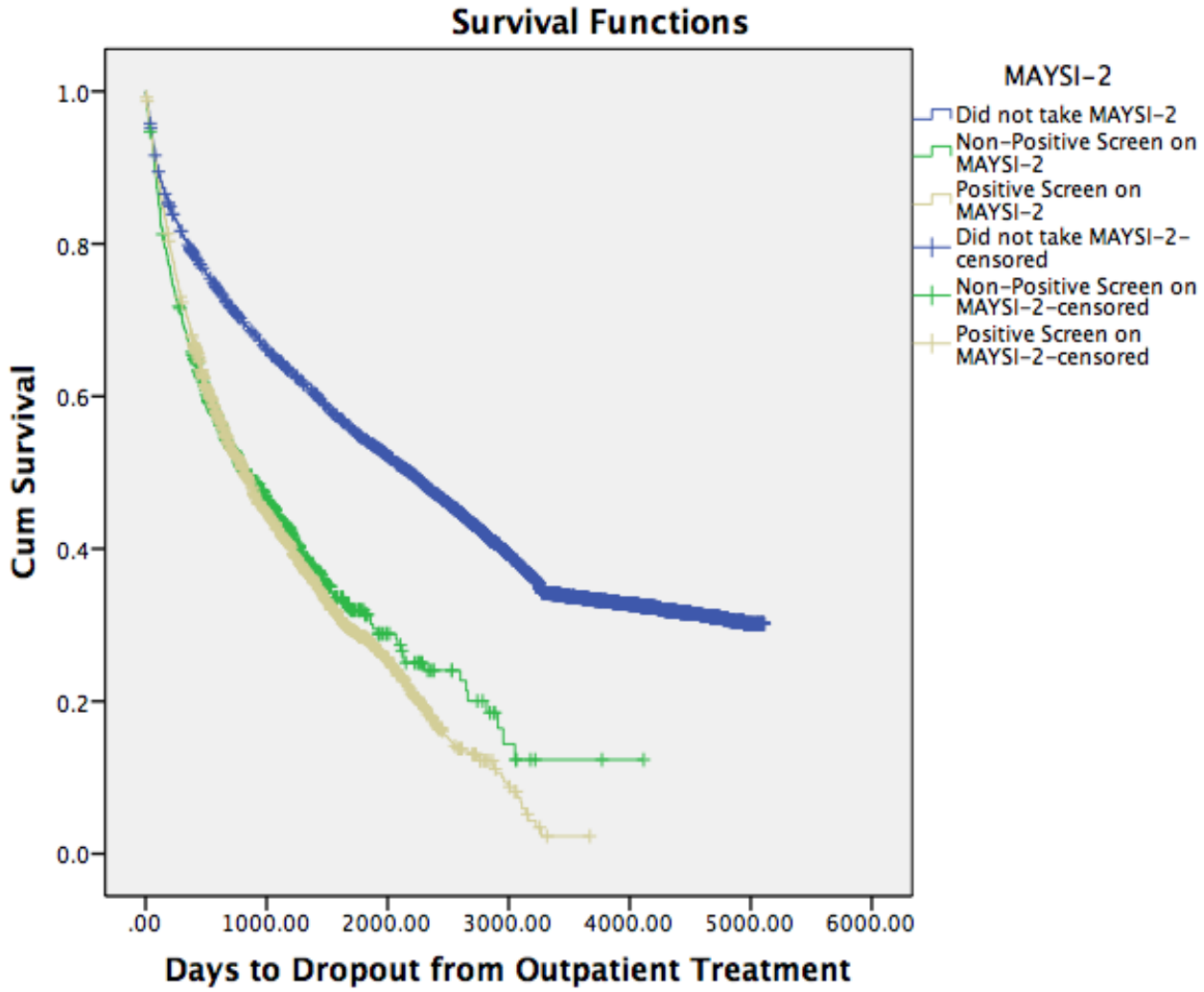

Figure 3.18 Survival Curve for Treatment Termination: MAYSI-2. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). MAYSI-2 = Massachusetts Youth Screening Instrument-2nd Edition. Survival curves are divided by MAYSI-2 groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

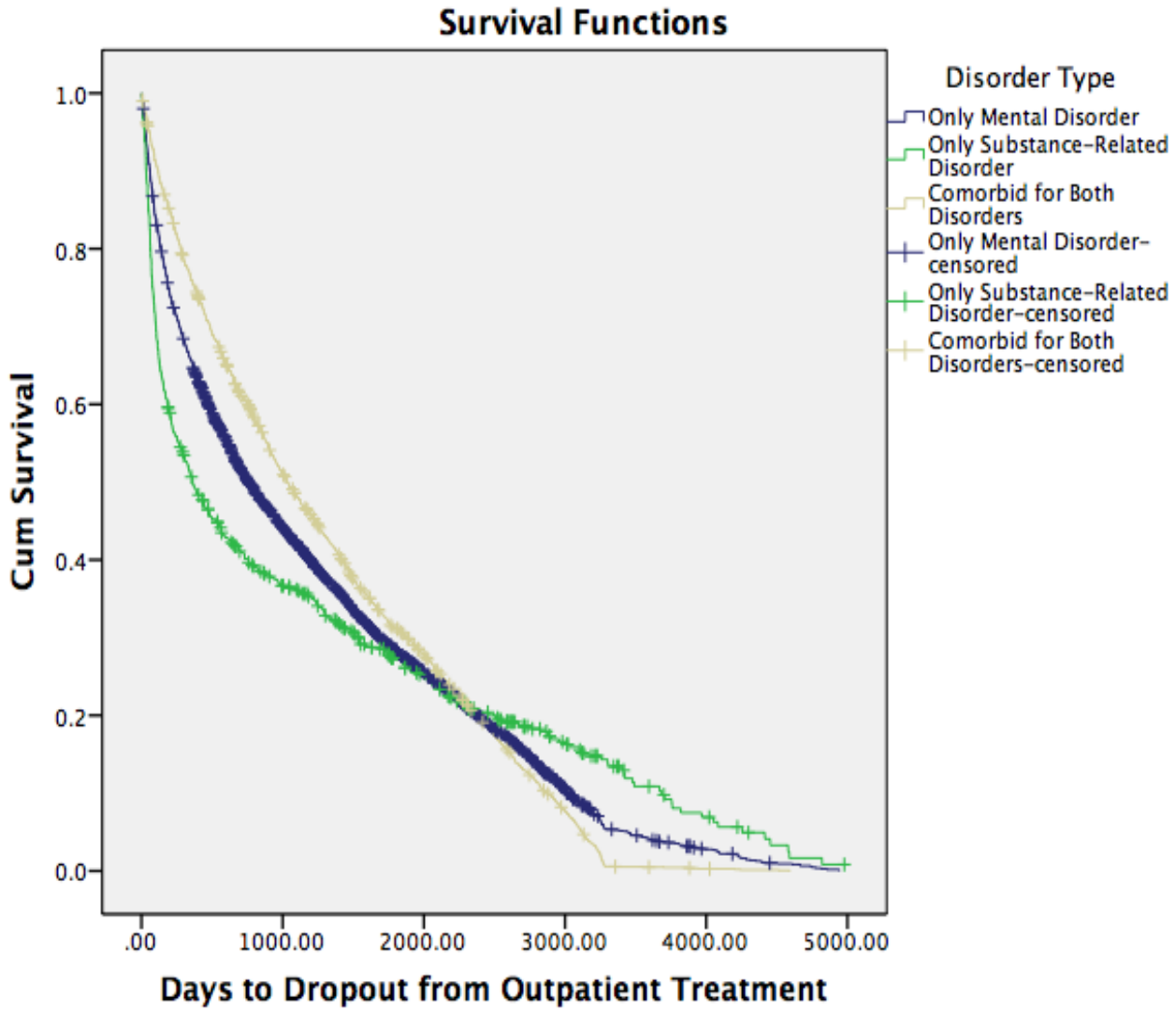

Figure 3.19 Survival Curve for Treatment Termination: Disorder Type. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by disorder type. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

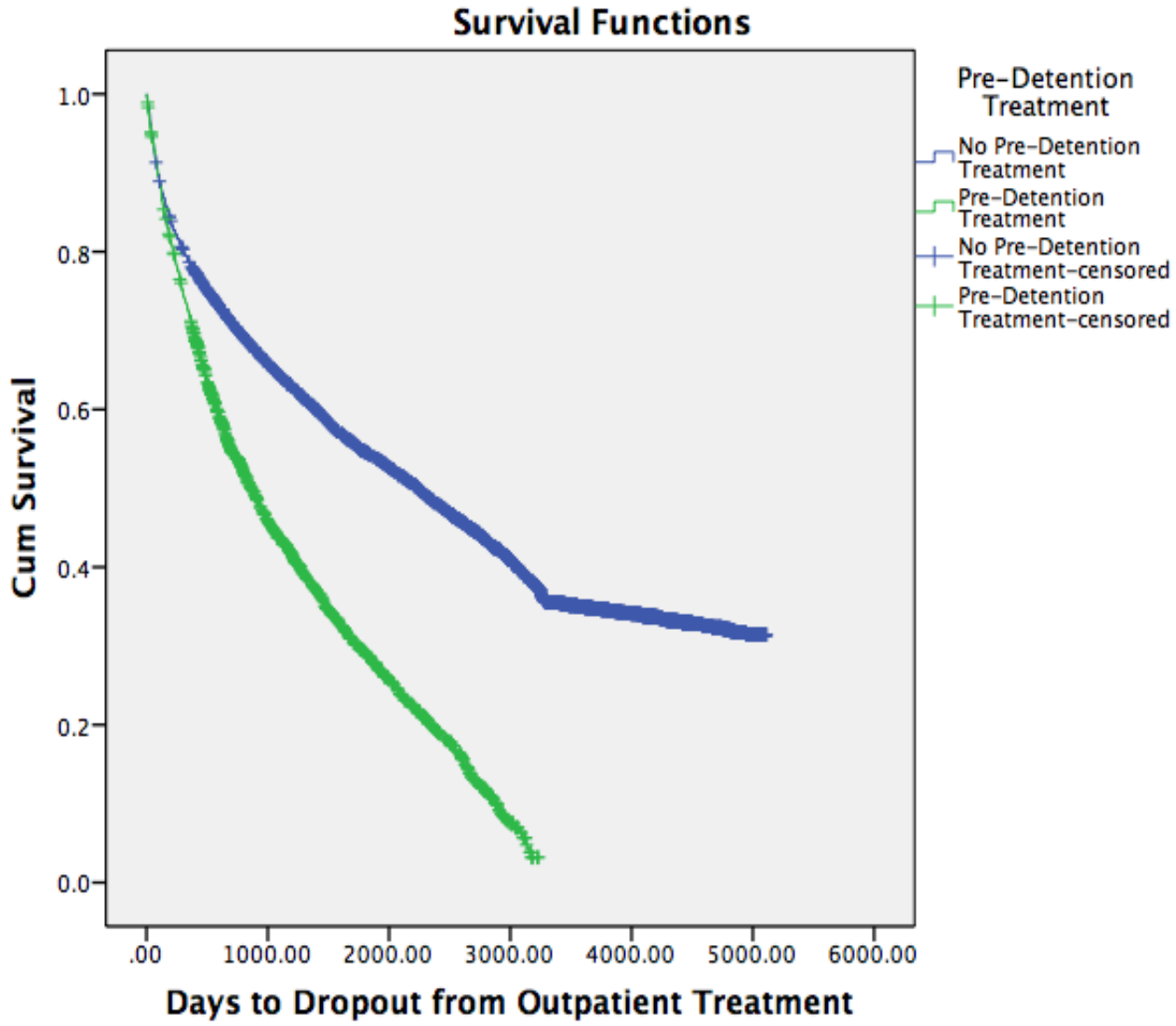

Figure 3.20 Survival Curve for Treatment Termination: Prior Treatment. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by pre-detention treatment groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

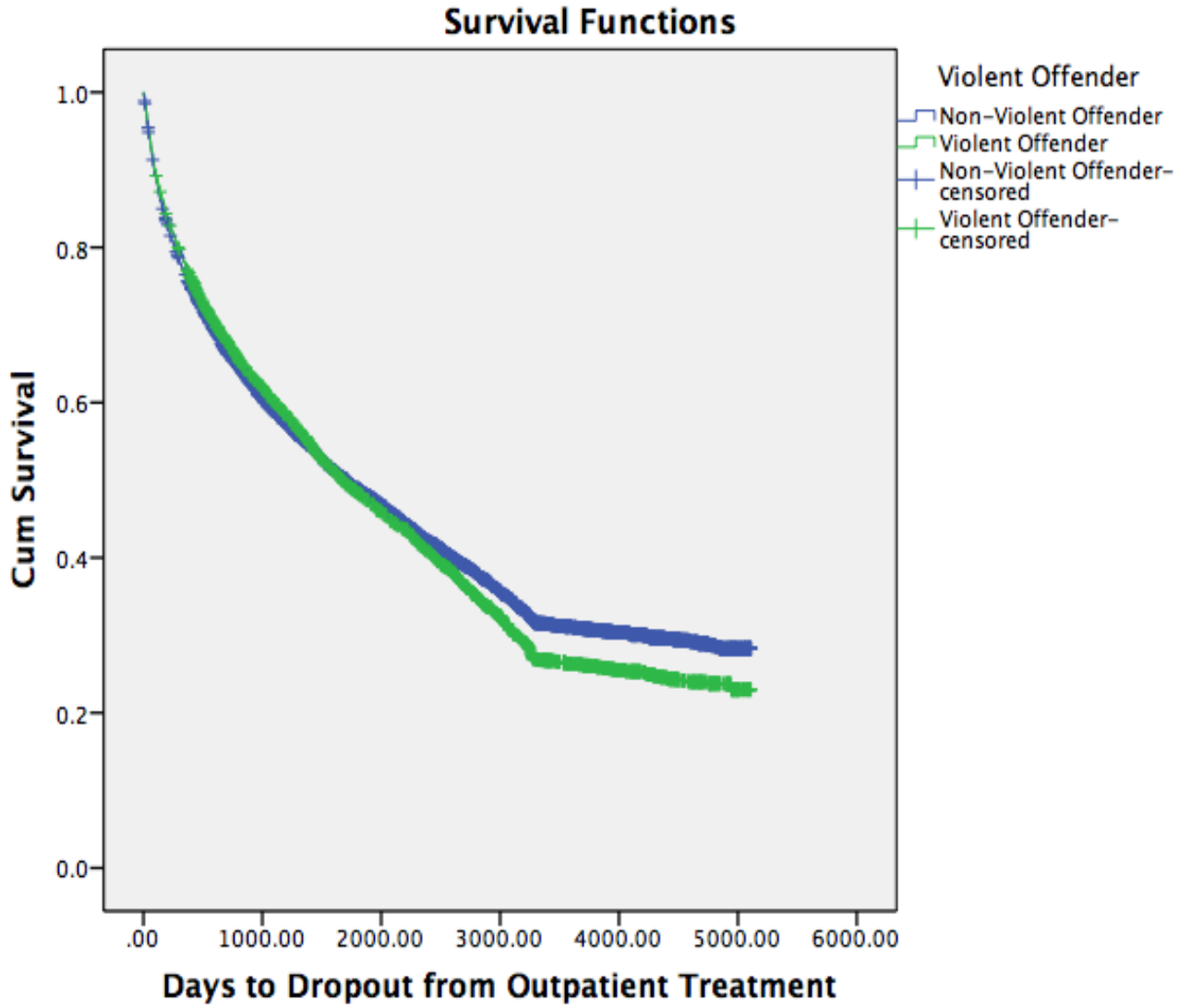

Figure 3.21 Survival Curve for Treatment Termination: Violent Offender. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by violent offender groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

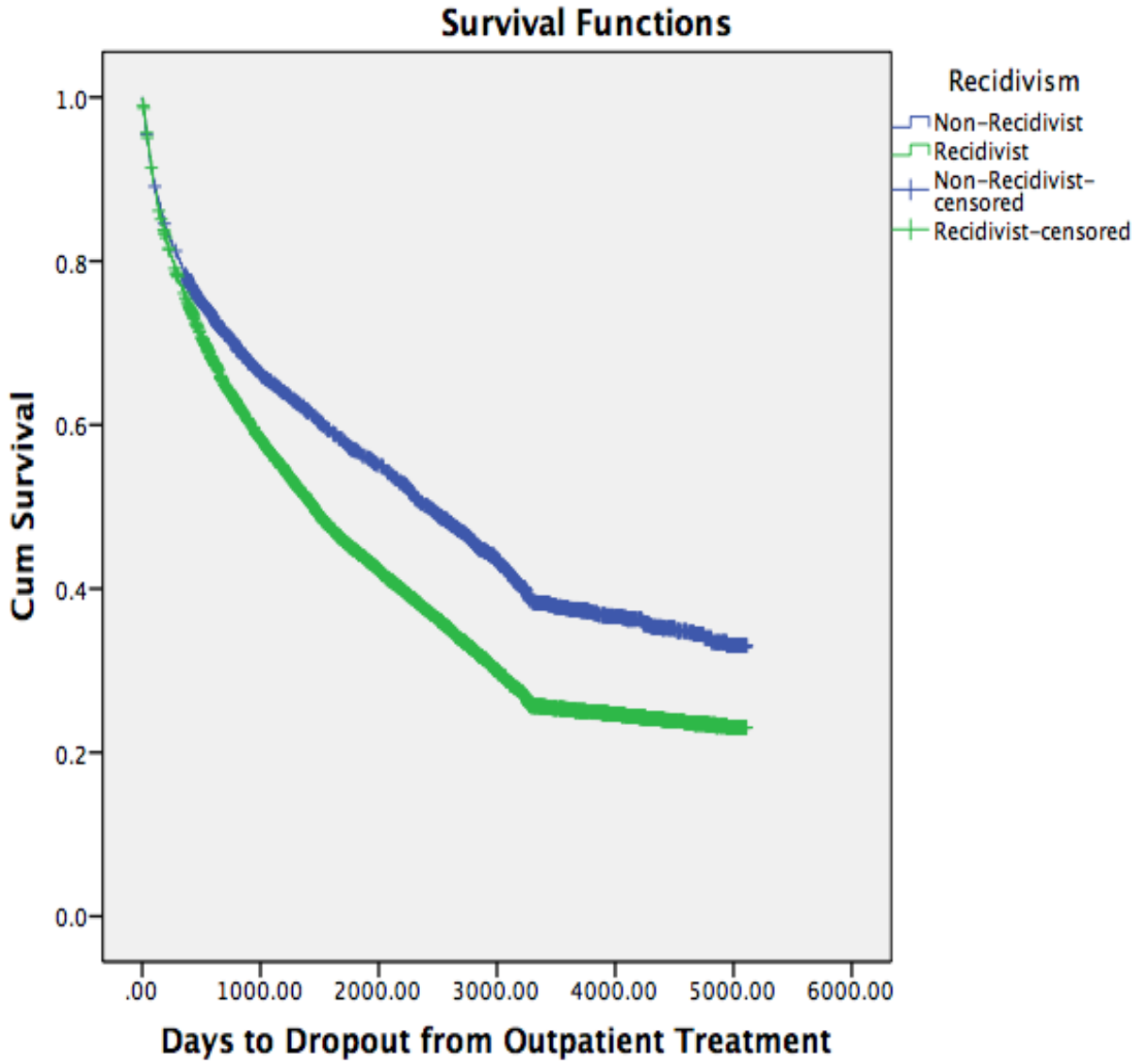

Figure 3.22 Survival Curve for Treatment Termination: Recidivism. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by recidivism groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

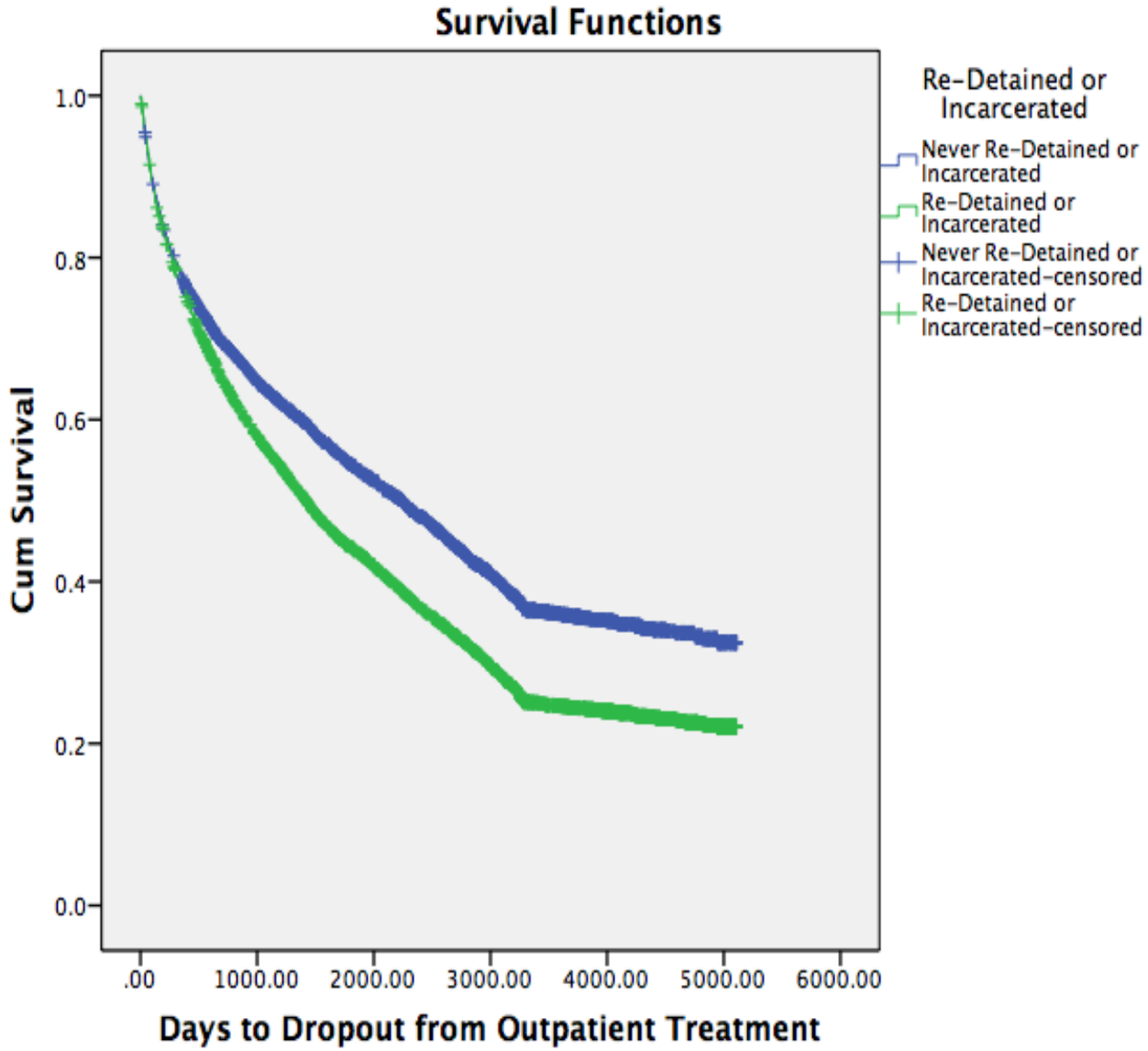

Figure 3.23 Survival Curve for Treatment Termination: Re-Detained. Survival curves for time (in days) until termination from outpatient treatment, from date of first outpatient service to date of final outpatient service among total sample (N = 9664). Survival curves are divided by violent offender groups. Cum Survival = Cumulative survival, or total proportion of participants surviving without treatment (i.e., non-users). Survival functions refer to the survival curves for participants who utilized treatment. Censored refers to participants who were lost due to attrition (i.e., death or missing data) or remained non-users until the end of the study time frame.

APPENDIX

APPENDIX

Table A.1. Codebook for Variables, Variable Type, and Levels

Variable	Variable Type	Definition/Levels
General		
Follow-up time-points	Categorical	1. Pre-detention 2. During detention 3. Day of release from detention 4. 1 month post detention 5. 3 months post-detention 6. 6 months post-detention 7. 1 year post-detention 8. 1.5 years post-detention 9. 2 years post-detention 10. Anytime post-detention
Time cohort	Categorical	1. Cohort one: 1998 – 2005 2. Cohort two: 2006 – 2011
Inclusion Criteria	Categorical	0. Exclude, does not met criteria 1. Include, meets criteria
Include: 2-Year Follow-up	Categorical	0. Exclude for 2-year follow-up analysis 1. Include for 2-year follow-up analysis
Demographics Domain		
Date of Birth	Continuous	Month and year of birthdate
Date of Death	Continuous	Month and year of death
Gender	Categorical	0. Female 1. Male
Race/Ethnicity	Categorical	0. White 1. Black 2. Hispanic 3. Other
Race	Categorical	0. White 1. Black

Table A.1 Continued.

Gender X Race	Categorical	1. White males 2. White females 3. Black males 4. Black females 5. Other males 6. Other females
Age Cohort	Categorical	1. Younger: Age 11-13 2. Mid-Age: Age 14-15 3. Older: Age 16-18
Age	Continuous	Actual age of youth at detention entry
Insurance	Categorical	1. Medicaid 2. Private insurance 3. No insurance/Self-pay 4. Unknown/Missing
Criminal History Domain		
Year of Detention	Continuous	Year of first detention
Age at First Contact	Continuous	Age at first contact with juvenile justice system
Detention Entry	Continuous	Date (day, month, year) of detention entry
Detention Release	Continuous	Date (day, month, year) of detention release
Length of Stay	Continuous	Time of detention stay (in days)
Prior Referral	Categorical	0. No 1. Yes, prior contact
Prior Referrals	Continuous	Number of referrals/contacts with juvenile justice system prior to first detention stay
Number of Charges	Continuous	Total number of charges for participant
Charge Level	Categorical	1. Status offense/probation violation 2. Misdemeanor 3. Felony
Charge Class	Categorical	1. A 2. B 3. C 4. D 5. S
Charge Severity	Categorical	1. Status offense/Probation violation 2. Non-violent misdemeanor 3. Violent misdemeanor 4. Non-violent felony 5. Violent felony

Table A.1 Continued

Charge Type	Categorical	1. Severe (murder, manslaughter, kidnapping) 2. Conduct-related (battery, assault, recklessness, intimidation) 3. Weapons (possession, use, or no license for weapons) 4. Property (theft, robbery, arson) 5. Drug/Alcohol (possession, dealing, intoxication) 6. Sexual (rape, molestation, indecent exposure, sexual battery) 7. Trespass/Loiter (trespass, conversion, entry) 8. Driving-related (no license, reckless driving, failure to stop) 9. Fraud (fraud, identity deception, impersonation, false reporting) 10. Resist arrest (flee, escape, resist, interfere with arrest) 11. Warrant arrest 12. Modification/Violation (probation, runaway, curfew, home detention) 13. Other 14. Unknown/Missing
Reason for Detention Stay	Categorical	1. Awaiting action (pre-adjudication, post-adjudication) 2. Court-ordered detention 3. Arrest (outright arrest, new arrest) 4. Warrant arrest/Failure to appear 5. Probation violation 6. Other 7. Missing/Unknown
Reason for Detention Release	Categorical	1. Released to home detention 2. Community adjustment 3. Prison, county jail, other jurisdiction 4. Released to parent/guardian 5. Released to emergency shelter or Department of Child Services 6. Released for unspecified placement 7. Released for treatment, hospital, or diagnostic center 8. Other 9. Unknown/Missing

Table A.1 Continued

Risk Assessment Inventory (RAI) Date	Continuous	Date (day, month, year) in which participant completed RAI
Risk Assessment Inventory Score	Continuous	Total score on Risk Assessment Inventory
Risk Assessment Inventory: Risk Level	Categorical	1. Low-risk: Low-risk: 0-5 for males; 0-7 for females 2. Medium-risk: 6-12 for males; 8-13 for females 3. High-risk: ≥13 for males; ≥14 for females
Violent Offender	Categorical	0. No 1. Yes, at least one violent offense
Recidivism	Categorical	0. No 1. Yes, re-arrest following release from detention
Recidivism: 2-Year Follow-up	Categorical	0. No 1. Yes, re-arrest within two years of detention release
Recidivism Timing	Categorical	0. No recidivism 1. Recidivism within 3 months 2. Recidivism within 4-6 months 3. Recidivism within 6 months-2 years 4. Recidivism after 2 years
Number of Recidivism Events	Continuous	Number of recidivism events following release from detention
Number of Recidivism Events: 2-Year Follow-up	Continuous	Number of recidivism events within two years of detention release
Recidivism Rate	Continuous	Number of recidivism event divided by total number of detentions
Recidivism before Treatment	Categorical	0. No, not re-arrested and/or utilized treatment 1. No, recidivism after first treatment service 2. Yes, recidivism before first treatment service
Re-Detention	Categorical	0. No 1. Yes, placed in detention for a second time following release from first detention stay

Table A.1 Continued

Re-Detention: 2-Year Follow-up	Categorical	0. No 1. Yes, placed in detention for second within two years of detention release
Timing of 2nd Detention	Categorical	0. No 2nd Detention 1. 2nd detention stay within 1 day 2. 2nd detention stay within 1 month 3. 2nd detention stay within 2 months 4. 2nd detention stay within 3 months 5. 2nd detention stay within 4-6 months 6. 2nd detention stay within 7-12 months 7. 2nd detention Stay within 1-2 years 8. 2nd detention Stay after 2 years
Re-Detained before Treatment	Categorical	0. No, not re-detained or no treatment 1. No, re-detained after first treatment service 2. Yes, re-detained before first treatment service
Number of Detentions	Continuous	Number of detentions (excluding first detention stay)
Number of Detentions_ 2 Years	Continuous	Number of detentions within two years of detention release (excluding first detention stay)
Incarceration in Prison	Categorical	0. No 1. Yes, incarcerated in prison
Incarceration: 2-Year Follow-up	Categorical	0. No 1. Yes, incarcerated in prison within two years of detention release
Number of Incarcerations	Continuous	Number of prison stays during study time frame
Number of Incarcerations: 2-Year Follow-up	Continuous	Number of prison stays within two years of detention release
Re-detained/ Incarcerated	Categorical	0. No 1. Yes, placed in second detention stay and/or incarcerated in prison following release from detention
Re-detained/ Incarcerated: 2-Year Follow-up	Categorical	0. No 1. Yes, placed in second detention stay and/or incarcerated in prison within two years post-detention

Table A.1 Continued

Timing of Incarceration in Prison		1. No Incarceration in prison 2. Incarceration with 24 hours 3. Incarceration within 1 day-1 month 4. Incarceration within 1-2 months 5. Incarceration within 2-3 months 6. Incarceration within 4-6 months 7. Incarceration within 7-12 months 8. Incarceration within 1-2 years 9. Incarceration after 2 years
Mental Health and Substance-Related Needs/Diagnoses Domain		
MAYSI-2 Score	Continuous	Total number of items endorsed
Alcohol/Drug Use Subscale	Continuous	Number of items endorsed within subscale (out of 8 items)
Angry/Irritable Subscale	Continuous	Number of items endorsed within subscale (out of 9 items)
Depressed/Anxious Subscale	Continuous	Number of items endorsed within subscale (out of 9 items)
Somatic Complaints Subscale	Continuous	Number of items endorsed within subscale (out of 6 items)
Suicidal Ideation Subscale	Continuous	Number of items endorsed within subscale (out of 5 items)
Traumatic Experiences Subscale	Continuous	Number of items endorsed within subscale (out of 5 items)
Thought Disturbances Subscale	Continuous	Number of items endorsed within subscale (out of 5 items)
Caution or Warning on Alcohol/Drug Use Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution or Warning on Angry/Irritable Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution or Warning on Depressed/Anxious Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution or Warning on Somatic Complaints Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution or Warning on Suicidal Ideation Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range

Table A.1 Continued

Caution or Warning on Traumatic Experiences Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution or Warning on Thought Disturbances Subscale	Categorical	0. No 1. Yes, score falls within caution or warning range
Caution Subscales	Continuous	Number of subscales in caution range (out of 7 subscales)
Warning Subscales	Continuous	Number of subscales in warning range (out of 7 subscales)
MAYSI-2 - Positive Screen	Categorical	0. No 1. Yes, positive screen (i.e., warning/ caution on Suicidal Ideation and/or warning/caution on ≥2 subscales)
MAYSI-2 Date	Continuous	Date (day, month, year) in which participant completed MAYSI-2
MAYSI-2 Length	Continuous	Minutes to complete MAYSI-2
Mental Disorders	Categorical	ICD-9 codes for different disorders
Disorder Prevalence	Continuous	Percent of sample with any diagnosis (ICD-9 codes)
Mental Disorder Prevalence	Continuous	Percent of sample with mental disorder codes (excluding substance-related disorders)
Substance-Related Prevalence	Continuous	Percent of Sample with substance-related codes (excluding mental disorders)
Comorbidity Prevalence	Continuous	Percent of sample meeting criteria for both types of disorders
Date of Diagnosis	Continuous	Month and year of each disorder (i.e., date in which ICD-9 code first appears in medical records)
Timing of Diagnosis	Categorical	1. Pre-detention 2. During detention 3. Post-detention
Disorder (Y/N)	Categorical	0. No disorder 1. Disorder
Mental Disorder (Y/N)	Categorical	0. No disorder 1. Mental disorder
Conduct Disorder (Y/N)	Categorical	0. No 1. Yes, conduct disorder
Non-Conduct Mental Disorder (Y/N)	Categorical	0. No 1. Yes, mental disorder (other than conduct disorder)

Table A.1 Continued

Substance-Related Disorder (Y/N)	Categorical	0. No Disorder 1. Substance-related disorder
Comorbid for both Disorders (Y/N)	Categorical	0. No 1. Comorbid
Disorder Type	Categorical	1. Only mental health disorder(s) 2. Only substance-related disorder(s) 3. Comorbid for both disorders
Number of Disorders	Continuous	Total number of disorders for participant
Disorder Intensity	Categorical	1. 1 disorder 2. 2-3 disorders 3. 4-5 disorders 4. 6-7 disorders 5. ≥8 disorders
Number of Mental Disorders	Continuous	Total number of mental disorders for participant
Mental Disorder Intensity	Categorical	0. No disorders 1. 1 disorder 2. 2-3 disorders 3. 4-5 disorders 4. ≥6 disorders
Number of Substance-Related Disorders	Continuous	Total number of substance-related disorders for participant
Substance-Related Disorder Intensity	Categorical	0. No disorders 1. 1 disorder 2. 2-3 disorders 3. ≥4 disorders
Mental Disorder Type	Categorical	1. Behavior-related disorder (conduct disorder, oppositional defiant disorder) 2. Attention deficit-hyperactivity disorder 3. Mood disorder (depression, bipolar) 4. Anxiety disorder (generalized, obsessive-compulsive disorder) 5. Adjustment or somatization disorder 6. Psychosis-related disorder 7. Other disorder (eating, sleep, feeding, personality)
Substance-Related Type	Categorical	1. Cannabis-related (abuse, dependence) 2. Alcohol-related (abuse, dependence) 3. Drug-related (abuse, dependence) 4. Other (using during pregnancy, fetal alcohol)

Table A.1 Continued

Treatment Services Domain		
Treatment Date	Continuous	Date (day, month, year) of treatment utilization
Treatment Timing	Categorical	1. Pre-detention 2. During detention 3. Post-detention
Treatment Type	Categorical	1. Mental health treatment 2. Substance-related treatment 3. Either/Both treatment
Treatment Timing in Days	Continuous	Days from detention release to treatment utilization
Number of Treatment Types	Categorical	0. No types/Non-user 1. One type 2. Two types 0. Three types
Pre-Detention Treatment	Categorical	0. No treatment 1. Yes, at least one treatment service prior to detention
During Detention Treatment	Categorical	0. No treatment 1. Yes, at least one treatment service during first detention stay
Type of User	Categorical	0. Non-User 1. Only mental health 2. Only substance-related 3. Only either/both 4. Mental health and substance-related 5. Mental health and either/both 6. Substance-related and either/both 0. All three types
Treatment Setting	Categorical	1. Outpatient 2. Inpatient stay 3. Emergency department visit
Treatment Setting - Final	Categorical	1. Outpatient 2. Non-outpatient
Number of Treatment Settings	Categorical	0. Non-user 1. One setting 2. Two settings 3. Three settings

Table A.1 Continued

Treatment User Setting	Categorical	0. Non-user 1. Only outpatient 2. Only non-outpatient 3. Outpatient and inpatient 4. Outpatient and emergency department visit 5. Outpatient, inpatient, and emergency department visit
Outpatient Service Intensity	Categorical	0. Non-user: No sessions 1. Low: 1-2 sessions 2. Low-to-moderate: 3-7 sessions 3. Moderate: 8-12 sessions 4. Moderate-to-high: 13-17 Sessions 5. High: 18-22 sessions 6. Extreme: ≥23 sessions
Non-Outpatient Service Intensity	Categorical	0. Non-user: No services 1. Low: 1 stay/visit 2. Low-to-moderate: 2 stays/visits 3. Moderate: 3-4 stays/visits 4. High: 5-6 stays/visits 5. Extreme: ≥7 stays/visits
Dropout from Outpatient Treatment	Categorical	0. No 1. Yes, dropped out within 3 outpatient sessions of same treatment type
Reason for Dropout	Categorical	0. No dropout 1. Detention/Prison 2. Inpatient 3. No clear reason
Dropout Session	Continuous	Number of outpatient sessions obtained until dropout
Outpatient Treatment Gap	Categorical	0. No 1. Yes, at least one gap between outpatient sessions
Reason for Treatment Gap	Categorical	0. No gaps 1. Detention/Prison 2. Inpatient 3. No clear reason
Pre-Detention Treatment – Mental Health	Categorical	0. No 1. Yes, at least one mental health treatment service prior to detention

Table A.1 Continued

Pre-Detention Treatment – Substance-Related	Categorical	0. No 1. Yes, at least one substance-related treatment service prior to detention
Pre-Detention Treatment – Either/Both	Categorical	0. No 1. Yes, at least one either/both treatment service prior to detention
Pre-Detention Treatment – Outpatient	Categorical	0. No 1. Yes, at least one outpatient treatment service prior to detention
Pre-Detention Treatment – Non-Outpatient	Categorical	0. No 1. Yes, at least one non-outpatient treatment service prior to detention
Number of Pre-Detention Treatment	Continuous	Number of treatment services prior to detention
Number of Pre-Detention Treatment – Mental Health	Continuous	Number of mental health treatment services prior to detention
Number of Pre-Detention Treatment – Substance-Related	Continuous	Number of substance-related treatment services prior to detention
Number of Pre-Detention Treatment – Either/Both	Continuous	Number of either/both treatment services prior to detention
Number of Pre-Detention Treatment – Outpatient	Continuous	Number of outpatient treatment services prior to detention
Number of Pre-Detention Treatment – Non-Outpatient	Continuous	Number of non-outpatient treatment services prior to detention
*** Follow coding rules from the previous 12 variables for treatment utilization (for three types and two settings) and number of treatment services (for three types and two settings) for During Detention Treatment and for Post-Detention Treatment		

VITA

VITA

Laura Morgan White

EDUCATION

August 2015 — Doctor of Philosophy, Clinical Psychology
Indiana University-Purdue University Indianapolis, IN
GPA: 4.0, *Summa Cum Laude*
Advisors: John McGrew, PhD, and Matthew C. Aalsma, PhD
Dissertation: *Mental Health and Substance-Related Treatment Utilization, Dropout, and Continuity of Care among Detained Adolescents: A 14-Year Longitudinal Study*

May 2012 — Master of Science, Clinical Psychology
Indiana University-Purdue University Indianapolis, IN
GPA: 4.0; *Summa Cum Laude*
Advisor: John McGrew, PhD
Thesis: *Parents Served by Assertive Community Treatment: A Needs- Based Assessment*

May 2008 — Bachelor of Science, Psychology
Loyola University Chicago, IL
Major: Psychology; Minor: Bioethics
GPA: 4.0; *Summa Cum Laude*
Advisor: R. Scott Tindale, PhD
Honors Thesis: *The Use of Reasoning in resource Allocation Decisions*

May 2008	Bachelor of Arts, Communication Loyola University Chicago, IL Major: Communications *Summa Cum Laude*; GPA: 3.96 Advisor: Elizabeth Lozano, PhD Independent Study: *Female Communication: A Qualitative Analysis of Communication between College Female First Year and Fourth Year Students*

HONORS AND AWARDS

2015	Chief Intern Primary Children's Hospital Internship, Salt Lake City, UT
2014	Clinical Psychology Graduate Student Clinical Award Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
2013	New Investigator Award, Nominee One of five nationally recognized scholars for excellence in research Society for Adolescent Health and Medicine 2014 Annual Meeting, Austin, TX
2013	First Place, Student Poster Competition Indiana Psychological Association 2013 Fall Conference, Indianapolis, IN
2013	Diversity Award, Student Poster Competition Indiana Psychological Association 2013 Fall Conference, Indianapolis, IN

2013	Graduate Student Research Award, Honorable Mention Awarded annually to one graduate student for outstanding research Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
2012	First Place, Student Poster Competition Indiana Psychological Association 2012 Fall Conference, Indianapolis, IN
2009 – 2014	Dean's List, Purdue School of Science Indiana University-Purdue University Indianapolis, IN
2008	Outstanding Achievement in Communication, School of Communication Loyola University Chicago, IL
2008	Outstanding Achievement in Science, College of Arts and Sciences Loyola University Chicago, IL
2004 – 2008	Dean's List, College of Arts and Sciences Loyola University Chicago, IL
2008	Phi Beta Kappa, National Honor Society, United States
2008	Alpha Sigma Nu, National Jesuit Honor Society, United States

GRANTS

2014	Educational Enhancement Grant, $500 Graduate and Professional Student Government, Indiana University-Purdue University Indianapolis, IN

2013 School of Science Graduate Student Council Travel Award, $500
Indiana University-Purdue University Indianapolis, IN

2012 School of Science Graduate Student Council Travel Award, $500
Indiana University-Purdue University Indianapolis, IN

FELLOWSHIPS AND ASSISTANTSHIPS

2013 – 2014 Pre-Doctoral Research Assistantship, Student Academic Appointment Indiana University School of Medicine, Department of Pediatrics, Section of Adolescent Medicine, Indianapolis, IN

2012 – 2013 Leadership Education in Adolescent Health Fellowship, Psychology Fellow
Indiana University School of Medicine, Department of Pediatrics, Section of Adolescent Medicine, Indianapolis, IN

2010 – 2012 Research Assistantships
Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN

2009 – 2010 University Fellowship
Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN

CLINICAL EXPERIENCE

August 11, 2014 – Predoctoral Intern in Clinical Psychology
August 7, 2015 Primary Children's Hospital Internship, Salt Lake City, UT
APA-Accredited Psychology Internship Training Program
Director of Training: Bruce Poulsen, PhD

First Rotation:	Psychology Intern (1000 hours, 63 children/adolescents, 48 families)
August 2014 –	Union Park Psychiatry and Counseling Services, Cottonwood Heights, UT
February 2015	Setting: Outpatient Clinic
	Hours: 45-55 hours/week
	Supervisor: Matthew Wenner, PhD

Duties: Manage a weekly caseload of 16-20 direct hours with children/adolescents (ages 3-22) presenting with psychological concerns (e.g., depression, anxiety, mood dysregulation, suicidality, substance abuse, behavior/conduct problems, trauma, social skills, feeding/eating concerns, sleep problems, poor attention/concentration, chronic medical conditions, autism) and psychosocial stressors (e.g., parental divorce, domestic violence, involvement in the juvenile justice system). Conduct intakes with children/adolescents and parents/guardians using structured interview protocols and brief screeners. Administer and score psychological assessments, projective tests, and self-report measures. Perform differential diagnosis. Utilize measures to assess functioning, monitor symptoms, and track progress. Research treatment literature to determine best practices. Coordinate with clients, parents/guardians, and supervisors to develop treatment plans based on empirically-supported interventions. Conduct weekly (or biweekly) individual therapy (CBT orientation with elements of family systems, developmental, biopsychosocial). Utilize motivational interviewing, empirically-supported interventions (e.g., CBT, DBT, ACT), and manualized evidence-based treatments (e.g., Coping Cat, Seeking Safety, Parenting with Love and Limits). Develop and implement behavioral reward systems and behavior modification plans. Conduct Structural Family Therapy, parent training, psychoeducation, and feedback sessions. Collaborate/consult with multidisciplinary team of psychologists, social workers, psychiatrists, and advanced practice registered nurses. Consult and coordinate treatment across various systems (e.g., school, juvenile justice, foster care). Give referrals for medication management and community resources. Write treatment summaries and updates for juvenile justice and school systems. Participate in weekly staff meetings and monthly multidisciplinary case

consultations. Document client encounters and write progress notes within electronic medical records system. Complete daily insurance billing sheets. Participate in weekly individual supervision, group supervision, and peer supervision with other interns. Present case conferences and review therapy sessions in supervision using video/audio recordings. Attend four different weekly didactic seminars.

Second Rotation	Psychology Intern (1000 hours, 5-8 adolescents and families)
February 2014 –	Wasatch Canyons Campus, Taylorsville, UT
August 2015	Setting: Residential Unit; Day Treatment Program
	Hours: 45-55 hours/week
	Supervisor: Bruce Poulsen, PhD (Training Director)

Duties: Manage a weekly caseload of 3-4 adolescents (ages 13-18) with significant psychiatric concerns (e.g., Major Depressive Disorder, Trauma-Related Disorders, Obsessive Compulsive and Related Disorders, Bipolar Spectrum Disorders, Anxiety Disorders, Schizophrenia Spectrum/Psychotic Disorders, Conduct Disorders, Feeding and Eating Disorders, and Substance-Related Disorders). Learn daily schedule/operations of Residential Unit and Day Treatment Program. Manage referrals from outside providers. Coordinate referrals/transitions to more intensive treatment facilities (e.g., inpatient, hospital). Complete one new comprehensive psychological evaluation with full battery of assessments (e.g., academic, intelligence, personality, behavior, memory, attention, adaptive functioning) and report per week. Provide weekly therapy (CBT orientation). Develop and implement behavioral reward systems and behavior modification plans. Conduct family therapy, psychoeducation, feedback session, and parent training. Facilitate or co-facilitate weekly groups, such as a Mood Group, Sexual Issues Group, and DBT. Collaborate with interdisciplinary team of providers. Document client encounters and write progress notes within electronic medical records system. Attend weekly staff meetings and grand rounds. When necessary, contact insurance companies to discuss/ensure coverage for clients. Participate in weekly two-hour individual, group, and peer supervision. Supervise a pre-doctoral graduate student. Present case conferences

and review therapy sessions in supervision using recordings of sessions. Attend four different weekly didactic seminars covering a range of psychological topics.

August 2012 – June 2013
Practicum Student (310 hours, 90 adults)
St. Vincent Primary Care Clinic, Indianapolis, IN
Setting: Integrated Primary Care Clinic
Hours: 12-15 hours/week
Supervisor: Thomas Barbera, PhD, HSPP

Duties: Received training in the Behavioral Health Consultant Model of Integrated Primary Care. Provided behavioral health consultation as part of an integrated treatment team of physicians, medical residents, social workers, psychiatrists, and pharmacists. Managed a weekly caseload of 7-10 direct hours with adults (ages 17-88) presenting with medical and/or mental health concerns (e.g., depression, anxiety, sleep disturbances, obesity, chronic pain, diabetes, anger management, headaches, organ transplantation, somatic complaints, attention, smoking cessation, and substance use). Conducted weekly intake interviews and brief individual cognitive-behavioral therapy. Used motivational interviewing, behavior modification, and relaxation training to promote health-related behavior changes. Administered brief assessments to track symptoms and treatment progress. Created and distributed educational handouts. Attended weekly Brown Bag meetings with medical residents. Documented all patient encounters within electronic medical record system. Participated in weekly individual supervision, staff meetings, and grand rounds. Attended monthly group supervision with practicum students.

August 2012 – August 2013
Clinical Psychology Fellow (470 hours, 22 adolescents)
Marion County Superior Probation Department, Juvenile Services Division, Indianapolis, IN
Setting: Juvenile Detention Center
Hours: 20 hours/week
Supervisor: Matthew Aalsma, PhD, HSPP

Duties: Completed one weekly psychological or psycho-educational evaluation and assessment report for the juvenile justice system. Clients included detained adolescents (ages 12-17) awaiting trial for misdemeanor and/or felony charges. Evaluations included structured clinical interviews with adolescents, interviews with parents/guardians, and the administration of psychological assessments and self-report surveys measuring intelligence, academic functioning, executive functioning, processing speed, mood, behavior, personality, thought disturbances, substance use, and criminality. Scored and interpreted testing results. Wrote 21 integrated reports detailing behavioral observations, testing results, mental health diagnoses, treatment recommendations, and treatment plans for multiple systems of care (e.g., home, school, legal). Provided feedback to parents/guardians, schools, and probation officers. Collaborated with interdisciplinary team of mental health providers, social workers, probation officers, judges, lawyers, physicians, and teachers. Spoke at local community meetings about juvenile justice-involved adolescents. Attended weekly didactic seminars about adolescent health. Supervised undergraduate assistants. Participated in weekly individual supervision and monthly group supervision.

August 2011 –	Practicum Student (298 hours, 35 children/adolescents, 5 families)
March 2012	Beacon Psychology Service, LLC, Carmel, IN
	Setting: Private Practice
	Hours: 14-16 hours/week
	Supervisor: Jennifer Horn, PhD, HSPP

Duties: Conducted one weekly psychological, psycho-educational, or neuropsychological evaluation with children/adolescents (ages 2-18) presenting at a private practice. Administered battery of assessments to measure intelligence, academic functioning, language, executive functioning, visual-motor coordination, motor skills, processing speed, memory, learning, attention/concentration, mood, behavior, personality, autism, thought disturbances, and substance use. Scored and interpreted testing results. Collaborated with supervisor to perform differential diagnosis, design behavioral modification plans, and plan treatment. Wrote 12 integrated reports detailing behavioral

observations, testing results, diagnoses, and treatment recommendations. Conducted intake interviews with parents and assisted with feedback sessions. Performed day-long school observations of children with Autism Spectrum Disorders and submitted reports to school system. Gained experience with creating Individualized Education Programs and attending Individualized Education Programs case conferences. Co-facilitated a weekly Social Skills Group with six males (ages of 15-18) with Autism Spectrum Disorders. Participated in weekly individual supervision and monthly group supervision.

January 2011 – May 2011 — Practicum Student (282 hours, 22 adolescents, 8 families)
Larue D. Carter Memorial Hospital, Indianapolis, IN
Setting: Inpatient Unit
Hours: 16-18 hours/week
Supervisors: John Spanke, PhD, HSPP and Angela Neese, PhD

Duties: Managed a weekly caseload of 2-4 female adolescents (ages 13-18) with significant psychiatric concerns (e.g., Mood Disorders, Anxiety Disorders, Behavior Disorders, Trauma-Related Disorders, Autism Spectrum Disorders, Intellectual Disabilities, Borderline Personality Disorder, Substance-Related Disorders, and/or Schizophrenia Spectrum/Psychotic Disorders). Performed daily mental status exams. Administered and scored intellectual and personality measures. Provided weekly individual therapy and milieu therapy, using cognitive-behavioral therapy techniques, mindfulness, relaxation training, psychoeducation, behavioral reward systems, goal-setting, motivational interviewing, coping cards, and social skills training. Facilitated weekly Process Group and biweekly Anger Management Group. Provided recommendations and consultation to systems of care (e.g., juvenile justice, school). Collaborated with interdisciplinary team of psychologists, psychiatrists, recreational therapists, medical residents, nurses, social workers, gatekeepers, and hospital staff. Attended weekly staff meetings, chart review meetings, and treatment update meetings with clients. Participated in weekly individual supervision and peer supervision.

May 2010 – December 2011 — Psychology Practicum Student (438 hours, 75 adults)
Richard L. Roudebush Veterans Administration Medical Center
Indianapolis, IN
Setting: Day Treatment Program; Inpatient Unit
Hours: 16-20 hours/week
Supervisor: Paul Lysaker, PhD, HSPP

Duties: Managed a weekly caseload of 3-4 veterans (ages 18-90) with Severe Mental Illness (i.e., Schizophrenia Spectrum/Psychotic Disorders, Bipolar Disorder, and/or Major Depressive Disorder). Provided weekly individual psychotherapy within an inpatient unit and/or the Psychosocial Rehabilitation and Recovery Center (PRRC), utilizing elements of meta-cognitive therapy, cognitive-behavioral therapy, and interpersonal therapy. Facilitated a weekly Process Group, Social Skills Group, and Recovery Group. Facilitated a weekly Dual Diagnosis Group with veterans diagnosed with Severe Mental Illness and Substance-Related Disorders. Co-facilitated a weekly Seeking Safety Group with veterans diagnosed with Post-traumatic Stress Disorder. Obtained personal narratives from veterans. Provided psychoeducation. Collaborated with veterans to create and implement treatment plans. Administered assessments to measure intelligence, executive functioning, theory of mind, processing speed, memory, learning, and attention. Wrote integrated reports detailing behavioral observations, testing results, treatment plans, and recommendations for educational and/or vocational programs. Served as member of an interdisciplinary team. Documented veteran encounters and wrote progress notes within electronic medical records system. Participated in weekly staff meetings, chart reviews, and group supervision.

COMMUNITY CLINICAL EXPERIENCE

January 2010 – October 2010 — Graduate Student Clinician (108 hours, 28 adults)
Midtown Community Mental Health Center, Indianapolis, IN
Setting: Community Mental Health Center
Hours: 3-6 hours per/week
Supervisors: Alan McGuire, PhD and Michelle Salyers, PhD

Duties: Co-facilitated weekly Illness Management and Recovery (IMR) and Process Group for adults with Severe Mental Illness (i.e., Schizophrenia Spectrum Disorders or Bipolar Spectrum Disorders). Provided psychoeducation and reviewed materials from IMR treatment manual. Collaborated with clients to set and achieve personal goals. Participated in training workshops and consultation calls related to IMR. Audio recorded group sessions and reviewed audiotapes to rate fidelity of sessions using the IMR Treatment Integrity Scale (IT-IS). Attended biweekly meetings and supervision.

August 2008 – July 2009 — Children's Counselor (1800 hours, 102 children, 44 families)
Catherine's Hearth Homeless Support Center, Baltimore, MD
Setting: Community Mental Health Center
Hours: 40-50 hours per/week
Supervisor: Dorothy Dobbyn, MSW

Duties: Served as children's programming coordinator and counselor at a support center for homeless families. Clients included homeless children/adolescents (>18 years) presenting with a variety of problems (e.g., depression, anxiety, trauma/neglect, intellectual disabilities, learning disabilities, conduct problems, malnutrition/feeding problems, and sleep disturbances). Created and implemented educational, physical, and art activities. Created and implemented behavioral reward systems. Assisted children with school assignments, studying for tests, and completing homework. Co-facilitated weekly family therapy sessions. Recorded daily attendance. Made weekly reminder phone calls to families regarding appointments and activities at the center. Participated in monthly supervision with other AmeriCorps volunteers.

SUPERVISION OF OTHER STUDENTS

August 2014 – Present — Peer Supervisor
Primary Children's Hospital Internship
Wasatch Canyons Campus, Taylorsville, UT
Hours: 2 hours per/week
Supervisor: Bruce Poulsen, PhD

Duties: Participate in weekly supervision meetings with other interns. Review ethical, legal, and cultural issues related to clinical work. Discuss current clinical cases, placements, and other issues related to the internship. Present cases and seek/provide feedback, resources, and recommendations.

August 2012 – May 2013
Peer Supervisor
Seminar in Teaching Psychology, Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
Hours: 4 hours/month
Supervisor: John Guare, PhD, HSPP

Duties: Attended monthly training meetings about different theories/approaches to supervision. Provided biweekly peer supervision and mentoring with a graduate student completing his/her first practicum placement. Role played different clinical scenarios and helped student learn appropriate administration of assessments. Offered support and resources to address difficult intervention and/or assessment cases.

August 2012 – July 2013
Peer Coach
Leadership Education in Adolescent Health, Indiana University School of Medicine, Section of Adolescent Medicine, Indianapolis, IN
Hours: 4 hours/month
Supervisors: Matthew Aalsma, PhD, HSPP and James Hall, PhD, LCSW

Duties: Participated in monthly mentoring sessions with a social work graduate student. Reviewed and offered feedback on supervisee's research, clinical cases, and course work. Obtained feedback and suggestions from supervisee. Discussed professional development and career trajectory. Offered support and resources to address difficult cases involving children/adolescents with complex mental and/or medical histories.

ASSESSMENTS ADMINISTERED

- Achenbach System of Empirically Based Assessment
- Achenbach Youth Self-Report, Ages 11-18
- Adaptive Behavior Assessment System-2
- Adult ADHD Self-Report Scale, Symptom Checklist
- Anxiety Disorder Symptom Rating Scale
- Attention-Deficit Hyperactivity Symptom Checklist
- Autism Diagnostic Observation Scale
- Autism Spectrum Rating Scales, including Short Form and Full Form
- Beck Anxiety Inventory
- Beck Depression Inventory-II
- Behavior Assessment System for Children-2, including Self-Report, Parent Rating Scales, and Teacher Rating Scales
- Bell-Lysaker Emotion Recognition Task
- Beery Test of Visual Motor Integration
- Brown Attention-Deficit Disorder Scales, including Ages 3-12, Ages 12-18, Parent Forms, and Teacher Forms
- California Verbal Learning Test-2
- California Verbal Learning Test-Children's
- Child Behavior Checklist for Ages 6-18, including Parent Report Form and Teacher Report Form
- Children's Depression Inventory-II, including Self-Report and Parent Report
- Children's Color Trails Test
- Children's Measure of Obsessive-Compulsive Symptoms
- Children's Memory Scale
- Children's Yale-Brown Obsessive Compulsive Scale
- Clinical Evaluation of Language Fundamentals-4
- Columbia Suicide Severity Rating Scale
- Comprehensive Test of Phonological Processing-2

- Conners 3 ADHD Index, including Self-Report, Parent Report, and Teacher Report
- Conners Adult ADHD Rating Scales, including Short Version and Long Version
- Conners' Kiddie Continuous Performance Test-2 and Continuous Performance Test-2
- Connors' Rating Scale
- Delis-Kaplan Executive Function System
- Depression Symptom Rating Scale
- Developmental Test of Visual-Motor Integration-6
- Developmental Test of Visual Perception-2
- Devereux Scales of Mental Disorders
- Differentiation of Self Inventory-Short Form
- Edinburgh Postnatal Depression Scale
- Hinting Task
- Generalized Anxiety Disorder-7 item scale
- Kaufman Brief Intelligence Test-2
- Learning Disabilities Diagnostic Inventory
- Massachusetts Youth Screening Instrument-2
- Mental Status Examination
- Minnesota Multiphasic Personality Inventory-2
- Minnesota Multiphasic Personality Inventory -Adolescent
- Mood Disorder Questionnaire
- Mood Regulation Symptom Rating Scale
- Multidimensional Anxiety Scale for Children-2
- NEO-Personality Inventory-Revised
- Ohio State University TBI Identification Method
- Oral and Written Language Scale
- Panic Attack Scale
- Panic Disorder Severity Scale-
  Self-Report Form
- Patient Health Questionnaire-9, Adult and Adolescent Version

- Prodromal Questionnaire-Brief Version
- PTSD Symptom Scale
- Reynolds Adolescent Depression Scale
- Revised Children's Manifest Anxiety Scale
- Roberts Apperception Test for Children-2
- Rorschach Inkblot Test
- Rotter Incomplete Sentences Blanks
- Screen for Child Anxiety Related Disorders
- Self-Reflection and Insight Scale
- Sentence Completion Test
- Sentence Completion Test-Adolescent
- Sheehan Disability Scale
- Social Language Development Test Elementary
- Social Responsiveness Scale-2nd Edition Parent Rating Scale for School Age; for Preschool Version
- Stressful Life Events Screening Questionnaire
- Structured Clinical Interview for DSM-IV
- Substance Abuse Subtle Screening Inventory-Adolescent 2
- Test of Everyday Attention for Children
- Test Observation Form for Ages 2-18
- Test of Word Reading Efficiency-2
- Test of Written Language-4
- Thematic Apperception Test
- Trail Making Test
- Trauma Symptom Checklist for Children
- Vanderbilt ADHD Diagnostic Parent Rating Scale, and Teacher Rating Scale
- Wechsler Adult Intelligence Scale-IV
- Wechsler Individual Achievement Test-III
- Wechsler Intelligence Scale for Children-IV (Training in WISC-V)

- Wechsler Preschool and Primary Scale of Intelligence-III
- Wender Utah Rating Scale
- Wide Range Achievement Test-4
- Wide Range Assessment of Memory and Learning-II
- Wisconsin Card Sorting Test
- Woodcock-Johnson III Tests of Achievement
- Woodcock-Johnson III Tests of Cognitive Abilities
- Youth Level of Service/Case Management Inventory

RESEARCH EXPERIENCE

August 2012 – July 2014

Study Coordinator; Predoctoral Research Fellow
Juvenile Justice Laboratory, Indiana University School of Medicine, Department of Pediatrics, Section of Adolescent Medicine, Indianapolis, IN
Hours: 20-25 hours per/week
Grants/Studies: Health Care Access for Delinquent Youth (HRSA/MCHB R40MC08721); Arrested Youth: Epidemiological, Mental Health Care, and Cost-Effectiveness Research to Guide Public Health Partnerships (HRSA/MCHB R40 MC 21514-01); Youth Personal Responsibility Education Program (Indiana Family Health Council)
Supervisor: Matthew Aalsma, PhD, HSPP

Duties: Served as member of research laboratory. Recruited participants for studies by visiting high schools, sharing study information, answering questions, and obtaining contact information. Visited the homes of participants, obtained written consent, and provided reimbursement. Administered standardized surveys to juvenile justice-involved adolescents and parole officers. Conducted standardized interviews with adolescents participating in sexual education classes and their parents. Completed and submitted IRB protocols. Managed longitudinal, statewide datasets. Conducted data analysis, including data coding, data entry, and statistical analyses (e.g., qualitative analysis, grounded

theory analysis, structural equation modeling, regression, path analysis, survival analysis). Prepared literature reviews. Contributed to conceptualization and design of new studies. Assisted with writing and submitting grants. Presented research via posters and oral presentations. Submitted and published research manuscripts. Participated in weekly lab meetings, conference calls, and individual supervision. Supervised undergraduate research assistants.

June 2013 –	Dissertation Research
August 2015	Chair: John H. McGrew, PhD Co-Chair: Matthew C. Aalsma, PhD
	Title: *Mental Health and Substance-Related Treatment Utilization, Dropout Rates, and Continuity of Care among Detained Adolescents: A 14-Year Longitudinal Study*

Abstract: Although approximately 60%-80% of detained adolescents have a psychiatric disorder, little is known about their utilization of mental health and substance-related treatment services upon release from detention. Given that treatment can potentially reduce symptomology and recidivism, the study examined detained adolescents' post-detention treatment utilization and longitudinal patterns of use. Data were abstracted from the electronic juvenile justice records and medical records of 9664 detained adolescents (62.7% male; 34.8% White, 65.2% Black; 72.6% with disorder) with Medicaid coverage held in a Midwestern detention center at some time during 1998-2011. A series of statistical tests (e.g., chi-square, ANOVA, logistic regression, Kaplan-Meier survival analyses, and Cox regression) were conducted to identify group differences in treatment utilization during the 14-year follow-up period. Following detention release, approximately 66.2% of adolescents were re-arrested and 54.9% were re-detained/incarcerated. Treatment utilization within two years post-detention was 36.7%; 31.4% obtained mental health treatment, 10.4% obtained substance-related treatment, 36.0% obtained outpatient treatment, and 6.2% obtained non-outpatient treatment. Among treatment users, 22.5% dropped out of treatment within 1-3 sessions and 40.6% experienced gaps (>45 days) between treatment services. Treatment

utilization was significantly higher among males, White (vs. Black) adolescents, younger adolescents, violent (vs. non-violent) offenders, recidivists (vs. non-recidivists), and adolescents with mental disorders (vs. substance-related disorders). Variables associated with increased likelihood of post-detention treatment included: male gender, psychiatric disorder(s), pre-detention arrest(s), charge severity, violent offender, incarceration, and pre-detention treatment; age and Black race were associated with decreased likelihood of treatment. As one of the only longitudinal studies to examine treatment utilization among detained adolescents upon community reentry, findings suggest limited service utilization, as well as treatment gaps and disparities. Future research should focus on the treatment needs of detained adolescents, factors associated with disparities, and programs/policies to ensure consistent identification, referral, and connection to care for detained adolescents.

January 2012 –	Preliminary Examination
May 2012	Chair: John H. McGrew, PhD Co-chair: Matthew C. Aalsma, PhD
	Title: *Treatment Utilization among the Detained Adolescent Population: A Meta-Analysis of Treatment Prevalence and Moderators*

Abstract: Each year, about 330,000 adolescents in the US are arrested and detained in juvenile justice facilities. As many as 60-80% of these detained adolescents (DAs) meet criteria for a mental or substance-related disorder, compared to only 15-20% of other adolescents. Despite the high prevalence of mental health disorders, research is limited regarding this population's access to and use of treatment. In fact, the prevalence of treatment utilization among DAs is not known, with utilization rates varying widely from 3% to 76% across studies. A meta-analysis was therefore conducted to review and synthesize the current literature regarding mental health and substance use treatment utilization among DAs. A total of 32 studies of 34 samples totaling 21,620 adolescents were coded and meta-analyzed using the Hunter and Schmidt approach. Mean sample-size weighted effect sizes were calculated and heterogeneity of effect sizes was examined via Cochran Q chi-square tests, meta-regressions, and I^2 indices to identify significant

moderators. Prevalence effect sizes (P) were low, with main effect sizes of P=26.1 (*CI*=18.0-0.36.2) for substance use services, P=29.6 (*CI*= 21.5-39.2) for mental health services, and P=38.1 (*CI*=28.5-48.7) for either service. The moderator analysis identified the following significant moderators of treatment utilization: gender, race/ethnicity, mental health, offender severity, treatment timing, treatment setting, study location, and study measure. Odd ratio effect sizes revealed males (*OR*=0.63, *CI*=0.52-0.78), racial minorities (*OR*=0.43, *CI*=0.33-0.56), and ethnic minorities (*OR*=0.53, *CI*=0.37-0.75) were significantly less likely to receive treatment. Overall, findings showed low service utilization and treatment disparities. Future research should focus on the treatment needs of DAs, improving services within juvenile justice facilities, and enacting programs for consistent identification and connection to care for all DAs.

Summer 2010	Research Consultant; Study Coordinator
Summer 2011	Richard L. Roudebush Veterans Administration Medical Center
Summer 2012	Health Services Research & Development, Indianapolis, IN
Summer 2013	Hours: 10-20 hours per/week
	Grants/Studies: Illness Management and Recovery (IMR) Treatment Integrity Scale Validation and Leadership Intervention Development (NIMH R21MH096835-01, $1,097,262); Process Evaluation of Illness Management and Recovery in VA Mental Health Services (VA HSR&D RRP 11-017, $154,200)
	Supervisors: Alan McGuire, PhD and Michelle P. Salyers, PhD

Duties: Former coordinator and contact person for listed grants. Completed and submitted IRB documents. Aided in recruitment of participants. Created web-based survey and interview protocol for measuring implementation of IMR within treatment sites across the US. Uploaded expert survey into online survey system and managed data retrieval. Conducted phone interviews with VA staff. Reviewed interview transcripts and assisted with creation of qualitative codebook. Coded interviews. Assisted with writing, reviewing, and submitting grants. Presented findings at conferences and co-authored

published papers. Scheduled research meetings, prepared agenda, and took minutes during research meetings. Supervised undergraduate research assistants.

January 2010 – 2014	Thesis Research Chair: John H. McGrew, PhD Title: *Parents Served by Assertive Community Treatment: A Needs-Based Assessment*

Abstract: Assertive Community Treatment (ACT) is an evidence-based practice for individuals with severe mental illness. Although studies estimate at least half of all people with severe mental illness are parents, little is known about ACT policies and treatment services for parents. Thus, this study utilized a mixed-methods design to evaluate treatment services for parents with Schizophrenia Spectrum /Psychotic Disorders being treated with Assertive Community Treatment (ACT). The purpose of the study was to 1) estimate the prevalence of parent consumers, 2) identify current ACT policies and practices for treating parent consumers, 3) and examine the perspective of parent consumers. Quantitative and qualitative data were collected and analyzed via 2 separate studies. In study 1, 82 ACT providers from 76 teams in the US and Canada were surveyed. Providers estimated 21.6% of ACT consumers were parents. Less than half of providers (46.3%) reported asking consumers about parental status and only 20.7% belonged to teams with special programs for parent consumers. The majority of providers (75.6%) reported negative or mixed attitudes about parents with severe mental illness. In study 2, 17 parents with severe mental illness were interviewed. All parents identified positive aspects of parenting and most (76.5%) identified negative aspects of parenting, including 15 parents (88.2%) who lost custody of their children. Most parents with young children (77.8%) reported unmet parenting needs and moderate satisfaction (3.78 of 5) with ACT services. Findings revealed significant attitude differences between providers and parents, gaps in services, and evidence that ACT may not be effective for treating mentally ill parents with dependent children.

August 2009 – May 2012 — Research Assistant
ACT Center of Indiana; Indiana University-Purdue University Indianapolis, IN
Hours: 20 hours/week
Grants/Studies: Center of Excellence on Implementing Evidence-Based Practice (VA HSR&D, $1,200,000); Recovery Oriented Assertive Community Treatment (NIMH 1 R24 MH074 670, $2,505,813); Limited ACT Fidelity, Training, and Technical Assistance (DMHA grant, $103,824)
Supervisors: John McGrew, PhD and Michelle P. Salyers, PhD

Duties: Co-coordinator for listed grants. Co-facilitated training seminars with mental health providers within Indiana. Created, submitted, and managed IRB protocols. Contacted and recruited Assertive Community Treatment (ACT) teams in Indiana. Conducted fidelity assessments of ACT teams using the Dartmouth Assertive Community Treatment Scale. Managed SPSS datasets. Wrote over 40 ACT fidelity reports to different ACT teams outlining fidelity scores and recommendations for better implementation of ACT. Drafted technical reports for the Department of Mental Health and Addictions. Presented findings at national conferences. Co-authored peer-reviewed papers. Attended weekly lab meetings and individual supervision.

August 2006 – May 2008 — Research Assistant
Social Psychology Laboratory, Loyola University Chicago, IL
Hours: 10-12 hours/ week
Supervisor: R. Scott Tindale, PhD

Duties: Ran group experiments involving undergraduate students engaging in resource allocation and decision-making tasks. Reviewed videotapes of experiments and rated tapes according to fidelity scales. Reviewed participants' qualitative responses to surveys and created qualitative coding scheme. Coded responses according to scheme. Collected, entered, and analyzed data in SPSS. Presented research at conferences. Attended trainings and weekly laboratory meetings.

PEER REVIEWED PUBLICATIONS

1. **White, L. M.,** Aalsma, M. C., Holloway, E. A., Adams, E. L., & Salyers, M. P. (2015). Job-related burnout among juvenile probation officers: Implications for mental health stigma and competency. *Psychological Services.*
2. Aalsma, M. C., **White, L.M.,** Lau, K. S. L., Perkins, A. J., Monohan, P. O., & Grisso, T. (2015). Behavioral health care needs, detention-based care and criminal recidivism at community re-entry from juvenile detention: A multi-site survival curve analysis. *American Journal of Public Health, (0),* e1-e7
3. **White, L. M.,** McGrew, J. H., Salyers, M. P., & Firmin, R. L. (2014). Assertive community treatment for parents with serious mental illnesses: A comparison of "parent-sensitive" assertive community treatment teams versus other teams. *Psychiatric Rehabilitation Journal, 37*(3), 251-260.
4. McGuire, A. B., Luther, L., White, D.A., W**hite, L. M.,** McGrew, J.H, & Salyers, M. P. (2014). The "critical" elements of illness management and recovery: Comparing methodological approaches. *Administration and Policy in Mental Health and Mental Health Services Research,* 1-10.
5. Bonfils, K. A., Adams, E. L., Firmin, R. L., **White, L. M.,** & Salyers, M. P. (2014). Parenthood and severe mental illness: Relationships with recovery. *Psychiatric Rehabilitation Journal, 37*(3), 186-193.
6. **White, L. M.,** McGrew, J. H., & Salyers, M. P. (2013). Parents served by assertive community treatment: Parenting needs, services, and attitudes. *Psychiatric Rehabilitation, 36*(1), 22-27.
7. **White, L. M.** & McGrew, J. H. (2013). Parents served by assertive community treatment: Prevalence, treatment services, and provider attitudes. *The Journal of Behavioral Health Services & Research, 2,* 1-16.
8. McGuire, A. B., White, D. A., **White, L. M**., & Salyers, M. P. (2013). Implementation of illness management and recovery in the VA: An online survey. *Psychiatric Services, 36*(4), 264-271.

9. McGrew, J. H., **White, L. M.,** Stull, L. G., & Wright-Berryman, J. (2013). A comparison of self-reported and phone-based fidelity for assertive community treatment (ACT): A pilot study in Indiana. *Psychiatric Services*, *64*(3), 272-276.
10. McGrew, J. H., **White, L. M.,** & Stull, L. G. (2013). Self-assessed fidelity: Proceed with caution: In reply. *Psychiatric Services, 64*(4), 394-395.
11. McGuire, A. B., Stull, L. G., Mueser, K., Santos, M., Mook, A., Nicksic, C., Rose, N., **White, L. M.,** & Salyers, M. P. (2012). Development and reliability of a measure of clinician competence in providing illness management and recovery. *Psychiatric Services, 63*(8), 772-778.

Published Abstracts

1. White, L.M., Aalsma, M.C., Monahan, P.O., & Perkins, A. (2014). Adolescents Involved in the Juvenile Justice System: Epidemiologic Study of Trends from 1999-2011. *Journal of Adolescent Health, 54*(2), S143-44.
2. White, L. M. & Aalsma, M. C. (2013). Mental health screenings in juvenile detention centers: Predictors of recidivism and mental healthcare utilization among detained adolescents with mental illness. *Journal of Adolescent Health, 52*(2), S11-12.
3. White, L. M., Aalsma, M. C., McGrew, J. H., Salyers, M. P., & McGrew (2014). Mental health service utilization among detained adolescents: A meta-analysis of prevalence and potential moderators of service utilization. *Journal of Adolescent Health, 52*(2), S1-S2.

Unpublished Technical Reports

1. McGrew, J. H, & **White, L. M.** (2012). Final report to department of mental health and addictions: DACTS fidelity assessments of assertive community treatment teams in Indiana. Unpublished technical report.
2. McGrew, J. H, & **White, L. M.** (2011). Final report to department of mental health and addictions: Summary of self-report versus phone-based fidelity assessments for 2010-2011. Unpublished technical report.

Works under Review

1. **White, L. M**., Lau, K. S. & Aalsma, M. C. (under review). Mental health needs of detained adolescents: Predictors of mental health treatment utilization and recidivism. *The Journal of the American Academy of Psychiatry and the Law.*
2. **White, L. M.,** Aalsma, M. C., Salyers, M. P. & McGrew, J. H. (under review). Mental health service utilization among detained adolescents: A meta-analysis of prevalence and potential moderators. *Journal of the American Academy of Child and Adolescent Psychiatry.*

Works in Progress

1. McGuire, A. B., Kukla, M., White, D. A., **White, L. M.,** & Salyers, M. P. Factors affecting implementation of an evidence-based practice in the VA: Illness management and recovery.

ORAL PRESENTATIONS AT SCIENTIFIC MEETINGS

1. Wenner, M. V., & **White, L. M**. (December 2014). Treatment of Anxiety Disorders. Presentation at Provider Training Seminar at Union Park Psychiatry and Counseling Services. Cottonwood Heights, UT.
2. Aalsma, M. C., & **White, L. M. (**May 2014). Job-related burnout among juvenile probation officers. Presentation at Department of Corrections Annual Juvenile Justice Conference. Indianapolis, IN.
3. **White, L. M.,** McGrew, J. H., Salyers, M. P., & Aalsma, M. C. (March 2014). Mental health service utilization among detained adolescents: A meta-analysis of prevalence and moderators. Presentation at Society of Adolescent Health and Medicine 2014 Annual Meeting, Austin, TX.
4. **White, L. M.,** & Aalsma, M. C. (May 2013). Detained adolescents: Mental illness, service utilization, and recidivism. Presentation at Midwest Psychological Association 85th Annual Meeting, Chicago, IL.
5. **White, L. M**., & Aalsma, M. C. (March 2013). Mental health screenings in juvenile detention centers: Predictors of recidivism and mental healthcare utilization among

detained adolescents with mental illness. Presentation at Society of Adolescent Health and Medicine 2013 Annual Meeting, Atlanta, GA.

6. McGrew, J. H., & **White, L. M.** (May 2012). An innovative approach to measuring ACT model fidelity. Workshop at 28th Annual Assertive Community Treatment Association Conference, Boston, MA.
7. **White, L. M.,** McGrew, J., H., & Salyers, M. (May 2012). ACT team policies and practices for the treatment of parent consumers: Provider and consumer perspectives. Workshop at 28th Annual Assertive Community Treatment Association Conference, Boston, MA.
8. McGrew, J. H., **White, L. M.,** & Rollins, A. (July 2011). DACTS fidelity results of assertive community treatment teams in Indiana. Presentation at Department of Mental Health and Addiction (DMHA) Annual Fidelity Meeting, Indianapolis, IN.

POSTER PRESENTATIONS AT SCIENTIFIC MEETINGS

1. **White, L. M.,** Aalsma, M. C., Perkins, A. J., & Monahan, P. O. (April 2014). Adolescents involved in the juvenile justice system: Epidemiologic study of trends from 1999-2011. Poster presentation at 4th Annual Maternal Child and Health Bureau Conference and Poster Session, Indiana University School of Science, Indianapolis, IN.
2. **White, L. M.,** Aalsma, M. C., Perkins, A. J., & Monahan, P. O. (March 2014). Adolescents involved in the juvenile justice system: Epidemiologic study of trends from 1999-2011. Poster presentation at Society of Adolescent Health and Medicine 2014 Annual Meeting, Austin, TX.
3. **White, L. M.,** Aalsma, M. C., Perkins, A. J., & Grisso, T. (March 2014). The impact of mental health treatment on criminal recidivism among detained adolescents: A survival curve analysis. Poster presentation at 15th Society for Research on Adolescence Biennial Meeting, Austin, TX.
4. **White, L. M.,** McGrew, J. H., Salyers, M. P., & Aalsma, M. C. (November 2013). Mental health service utilization among detained adolescents: A meta-analysis. Poster presentation at 2013 Indiana Psychological Association Fall Conference and

Annual Meeting, Indianapolis, IN

5. **White, L. M.,** McGrew, J. H., Salyers, M. P., & Aalsma, M. C. (October 2013). Mental health service utilization among detained adolescents: A meta-analysis of prevalence and moderator factors. Poster presentation at Institute of Psychiatric Services 65th Annual Meeting: Transforming Psychiatric Practice, Reforming Health Care, Philadelphia, PA.
6. **White, L. M.,** McGrew, J. H., & Salyers, M. P. (May 2013). Parents served by assertive community treatment: Needs, services, and attitudes. Poster presentation at Midwest Psychological Association 85th Annual Meeting, Chicago, IL.
7. **White, L. M.,** & Aalsma, M. C. (April 2013). Detained adolescents: Mental illness, service utilization, and recidivism. Poster presentation at 3rd Annual Maternal Child and Health Bureau Poster Session, Indiana University School of Science, Indianapolis, IN.
8. **White, L. M.,** & Aalsma, M. C. (April 2013). Mental health screenings in juvenile detention centers: Predictors of mental healthcare utilizations and recidivism. Poster presentation at 17th Annual PhD Spring Symposium 2013, Indiana University School of Social Work, Indiana University-Purdue University Indianapolis, Indianapolis, IN.
9. **White, L. M.,** & Aalsma, M. C. (April 2013). Mental health screenings in juvenile detention centers: Predictors of mental healthcare utilizations and recidivism. Poster presentation at 2013 IUPUI Research Day, Indiana University-Purdue University Indianapolis, Indianapolis, IN.
10. **White, L. M.,** & Aalsma, M. C. (February 2013). Detained adolescents: Mental illness, service utilization, and recidivism. Poster presentation at 24th Annual Joseph T. Taylor Symposium, Indiana University-Purdue University Indianapolis, Indianapolis, IN.
11. **White, L. M.,** & Aalsma, M. C. (October 2012). Mental health screenings in juvenile detention centers: Predictors of mental healthcare utilizations and recidivism. Poster presentation at 2012 Indiana Psychological Association Fall Conference and Annual Meeting, Carmel, IN.

12. **White, L. M.,** McGrew, J. H., & Salyers, M. P. (April 2012). Parents served by assertive community treatment: A needs-based assessment. Poster presentation at 2012 IUPUI Research Day, Indiana University-Purdue University Indianapolis, Indianapolis, IN.
13. McGuire, A. B., Stull, L. G., Mueser, K., Santos, M., Mook, A., Nicksic, C., Rose, N., **White, L. M.,** & Salyers, M. P. (March 2011). The illness management and recovery treatment integrity scale: Development and reliability. Poster presentation at 4th Annual NIH Conference on the Science of Dissemination and Implementation, Bethesda, MD.

TEACHING EXPERIENCE

Summer 2011	Seminar in Teaching Psychology Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
2009 – 2010	Graduate Teaching Assistant Psychology 499, Honors Research Seminar Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
2008 – 2009	Substitute Instructor Psychology 104, Psychology as a Social Science Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN
2004 – 2008	Private Tutor Biology, Mathematics, and Statistics Purdue University Calumet, Hammond, IN

2005 – 2007	Elementary School Substitute Teacher Kindergarten to 4th grade Merrillville Community School Corporation, Merrillville, IN

LEADERSHIP AND COMMUNITY SERVICE

2010 – 2014	Treasurer, Psychology Graduate Student Organization Indiana University-Purdue University Indianapolis, IN
2006 – 2008	Mentor and Tutor Inspired Youth Tutoring, Chicago, IL
2006 – 2008	Student Volunteer Midwest Psychological Association, Chicago, IL
2007 – 2008	Vice-President and Chair of Community Service National Society of Collegiate Scholars, Loyola University Chicago, IL
2004 – 2008	Vice President, Lambda Bi Eta, Beta Rho Chapter National Honor Society in Communication, Loyola University Chicago, IL

PROFESSIONAL ASSOCIATIONS AND ACTIVITIES

2012 – 2014	Student Member, Neuropsychology Graduate Student Organization
2011 – Present	Student Affiliate, Indiana Psychological Association
2011 – Present	American Psychological Association, Professional Affiliate o Division 35: Society for the Psychology of Women o Division 41: American Psychology: Law Society

- Division 53: Society of Clinical Child and Adolescent Psychology
- Division 54: Society of Pediatric Psychology

2009 – Present Reviewer for *Journal of Behavioral Health Services and Research*
Ad Hoc Review for *Psychiatric Services, Health Psychology, and Journal of Adolescent Health*

2009 – Present Assistance with grants, including writing, editing, and reviewing grants

2006 – Present Student Affiliate, Midwestern Psychological Association

PROFESSIONAL SEMINARS

August 2014 – June 2015 Family Therapy Seminar
Program: Primary Children's Hospital Psychology Internship
Location: Wasatch Canyons Campus, Taylorsville, UT

Description: Weekly seminar covering different theories, approaches, research, and practices related to family therapy. Based on the live observation team approach, the seminar provides instruction in all aspects of family therapy, including live observation of family therapy sessions, co-facilitation of family therapy sessions, review of recorded session materials and clinical notes, and group supervision with trained experts in Structured Family Therapy and Functional Family Therapy.

August 2014 – June 2015 Psychotherapy Seminar
Program: Primary Children's Hospital Psychology Internship
Location: University of Utah Neuropsychiatric Institute, Salt Lake City, UT

Description: Weekly training seminar for pre-doctoral interns and psychiatry residents from the University of Utah that addresses the diagnosis, assessment, and treatment of

children, adolescents, and families. Professionals provide specialized training in evidenced-based treatments, including Cognitive Behavioral Therapy, Dialectical Behavior Therapy, and Acceptance and Commitment Therapy. Clinical cases are presented with video or audio recordings, followed by discussion, review, and recommendations for these cases.

August 2014 – June 2015
Didactic Training Seminar
Program: Primary Children's Hospital Psychology Internship
Location: Varied

Description: Weekly seminar covering a myriad of topics related to Child and Adolescent Psychology. Presenters include providers at Primary Children's Hospital, community-based psychologists, private practitioners, and academic faculty at the University of Utah. Some seminars are held with psychology interns from other local APA-accredited psychology internship training programs, including Utah State Hospital, The University of Utah Neuropsychiatric Institute, and the Veterans Administration Salt Lake City Health Care System.

December 2014 – February 2015
Neuropsychology Seminar
Program: Primary Children's Hospital Psychology Internship
Location: Primary Children's Hospital, Salt Lake City, UT

Description: Weekly seminar focused on topics within neuropsychology, including the role of neuro-psychology on an interdisciplinary treatment team, issues related to working within a medical setting, current neuropsychological assessments, neuroimaging, neuropsychological disorders, and evidence-based treatments.

2009 – 2014
Proseminar in Clinical Psychology
Program: Clinical Psychology PhD Program
Location: Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN

Description: Weekly professional development course covering advanced clinical topics, including professional ethics, consultation, multicultural competence, case conferences,

clinical skills, evidence-based practices and interventions, research methods, publications, supervision, teaching, internships, job opportunities, licensure, and grant writing.

2013 – 2014 Supervision Seminar
Program: Teaching in Psychology
Location: Indiana University-Purdue University Indianapolis, Department of Psychology, Indianapolis, IN

Description: Biweekly course covering topics related to supervision within the field of psychology, including different supervision theories/approaches, ethical and legal issues, challenges to receiving and/or providing supervision, case studies, and evidence-based supervision.

2012 – 2013 Seminar in Adolescent Health and Medicine
Program**:** Leadership Education in Adolescent Health
Location: Indiana University School of Medicine Department of Pediatrics, Section of Adolescent Medicine, Indianapolis, IN

Description: Weekly professional development course covering topics related to adolescent health and medicine in the fields of psychology, psychiatry, social work, nutrition, nursing, and medicine.

2012 – 2013 Indiana Inter-Professional Leadership Learning Collaborative
Program: Leadership Education in Neurodevelopmental Disabilities
Location: Child Development Center, Riley Hospital for Children, Indianapolis, IN

Description: Biweekly half-day training workshop for professionals in psychology, psychiatry, social work, nutrition, nursing, and medicine. Training topics included developing leadership skills, engaging in advocacy, public policy, and working within interdisciplinary teams.

WORKSHOPS

November 2014 — Introduction to Wechsler Intelligence Scale for Children-V
Presenter: Megan Frye, MS, LMHW, Pre-Doctoral Intern
Location: Primary Children's Center for Counseling, Taylorsville, UT

October 2014 — Motivational Interviewing
Presenter: Kelly Lundberg, PhD, Psychologist, Associate Professor, Department of Psychiatry, University of Utah
Location: Assessment & Referral Services, Salt Lake City, UT

October 2014 — Psychological and Neuropsychological Sequelae of Pediatric Cancer
Presenter: Paul Colte, PsyD, MSCP, Pediatric Psychologist, Department of Pediatric Hematology/Oncology and Bone Marrow Transplant, Primary Children's Hospital
Location: Primary Children's Hospital, Salt Lake City, UT

September 2014 — Autism Diagnostic Observation Schedule-2 Training
Presenter: Stephanie Creekpaum, PsyD, Child and Adolescent Psychologist, Primary Children's Center for Counseling
Location: Primary Children's Center for Counseling, Taylorsville, UT

April 2014 — Biofeedback
Presenter: Eric Scott, PhD, Assistant Professor of Clinical Psychology, Department of Psychiatry, Indiana University School of Medicine
Location: Indiana University-Purdue University Indianapolis, IN

March 2014	Mechanisms of Mindfulness for Therapeutic Change Presenter: Linda Brown, PhD, Behavioral Health & Social Service Provider, Private Practice in Bloomington, Indiana Location: Indiana University-Purdue University Indianapolis, IN
October 2013	Consultation in Psychology: End-of-Life Services Presenter: Susan Hickman, PhD, Associate Professor, Co-Director, Melvin and Bren Simon Cancer Center, Indiana University School of Nursing Location: Indiana University-Purdue University Indianapolis, IN
August 2013	Meta-Analysis Workshop Presenter: Noel Card, PhD, Associate Professor, University of Arizona Location: Indiana University-Purdue University Indianapolis, IN
April 2013	Self-Hypnosis Training for Chronic Main Management Presenter: Mark Jensen, PhD, Professor and Vice Chair of Research, Department of Rehabilitation Medicine, University of Washington Location: Indiana University-Purdue University Indianapolis, IN
January 2013	Consultation: Evidenced-Based Practices and Fidelity Assessment Presenter: Angie Rollins, PhD, Research Scientist, IN University-Purdue University Indianapolis, ACT Center of Indiana Location: Indiana University-Purdue University Indianapolis, IN
December 2012	Illness Management and Recovery Presenter: Alan McGuire, PhD, Research Scientist, Richard L. Roudebush Veterans Administration Medical Center

Location: Richard L. Roudebush Veterans Administration Medical Center, Indianapolis, IN

August 2012 — Introduction to Structural Equation Modeling
Presenter: Gregory R. Hancock, PhD, Professor and Director of Center for Integrated Latent Variable Research, University of Maryland
Location: Indiana University-Purdue University Indianapolis, IN

October 2011 — Overview of Mental Health and Behavioral Consultation
Presenter: Lisa Ruble, PhD, Associate Professor of Educational Psychology, University of Kentucky
Location: Indiana University-Purdue University Indianapolis, IN

August 2011 — Sort & Sift, Think & Shift: Multidimensional Qualitative Analysis
Presenter: Raymond Maietta, PhD, Research Talk, Inc.
Location: Indiana University-Purdue University Indianapolis, IN

July 2011 — Fidelity Assessment of Recovery-Oriented Interventions
Presenters: Michelle Salyers, PhD, Associate Professor of Psychology, Indiana University-Purdue University Indianapolis
Alan McGuire, PhD, Research Scientist, Roudebush Veterans Administration Medical Center, Indianapolis, IN
Location: Richard L. Roudebush Veterans Administration Medical Center, Indianapolis, IN

June 2011 — Motivational Interviewing
Presenters: Hea-Won Kim, PhD Associate Professor of Social Work, Indiana University-Purdue University Indianapolis

	Angela Rollins, PhD, Assistant Research Professor, Indiana University-Purdue University Indianapolis Location: Indiana University-Purdue University Indianapolis, IN
May 2011	Group Schema Therapy Presenter: Joan Farrell, PhD, Adjunct Professor, Indiana University School of Medicine Location: Indiana University-Purdue University Indianapolis, IN
January 2011	Introduction to Grounded Theory A Social Constructionist Approach Presenter: Kathy Charmaz, PhD, Professor of Sociology and Director of Faculty Writing Program, Sonoma State University Location: Cary, NC
October 2008	Evidence Based Practices in Children's Mental Health Presenter: National Alliance on Mental Illness, Baltimore Chapter Location: Baltimore, MD