ABSTRACT

Title of Dissertation: FACTORS ASSOCIATED WITH THE REUNIFICATION

OF FOSTER CARE CHILDREN AND THEIR

MOTHERS

Sapphire Victoria Boone, Doctor of Philosophy, May 2019

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With the increase in substance use disorders among parents involved in child

welfare, children are at an increased risk for maltreatment, continued foster care

placement, and permanent legal separation from their biological parents. The purpose of

this study was to examine the impact of substance use disorders on reunification and

timeliness of reunification as well as create a profile of characteristics describing which

children and mothers are more likely to be reunified within one year or less.

This study conducted a quantitative analysis of an administrative child welfare

database, Targeted Grants to Increase the Well-Being of and to Improve the Permanency

Outcomes for Children Affected by Methamphetamine or Other Substance Abuse

(September 30, 2007-September 30, 2012). The study sample included 6,495 children

and 4,623 mothers stratified by type of sibling: youngest, oldest, or only to create a one to

one observation. Logistic regression and multiple logistic regression were used to identify significant predictors or reunification and timeliness of reunification. For children, age, race/ethnicity, and prior abuse history impacted the likelihood of reunification. Children who were less than one year old, African American, and a victim of prior abuse were significantly less likely to be reunified with their mothers. In addition, mothers who were age 39 or younger, African American, never married, had less than 12 years of education, unemployed, homeless, using heroin/opiates, cocaine/crack, and marijuana, not able to enter or complete treatment, and entered residential treatment were significantly less likely to be reunified with their children. Race/ethnicity and particular substance use characteristics had consistent significant impact on reunification and timeliness of reunification. In conclusion, this study will help to guide collaborations that will produce more effective innovations in program development, practice, and policies designed to prevent child maltreatment in families who are affected by alcohol and other drugs.

FACTORS ASSOCIATED WITH THE REUNIFICATION OF FOSTER CARE

CHILDREN AND THEIR MOTHERS

by

Sapphire Victoria Boone

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FACTORS ASSOCIATED WITH THE REUNIFICATION OF FOSTER CARE

CHILDREN AND THEIR MOTHERS

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has been approved

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DEDICATION

I dedicate this work to my family who made sure that I had a solid foundation in the Lord. It is because of this foundation that I had the strength to fulfill this pursuit, and I am grateful to my parents for instilling those values. I would like to dedicate this work to my husband, LaFayette Boone Jr., for his love and support that he has afforded me through this process. The wedding occurred while I was in the program, yet he supported me and all of my goals. This degree is not just my degree, but it is our degree. I would also like to dedicate this to my parents, Clifford and Jocelyn Goodman, and my sister, Alexus Goodman, for always supporting me, and to my husband's family for the continued support and love. To my best friends, April, Lasheena, Whitney, Sarah, Amber, Charmeika, and Romona, I dedicate this to you for always having my back and showing me love in ways that I never knew was possible.

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Chapter 1: Introduction

Statement of the Problem

The epidemic of illicit substance use that endangers our nation has many

economic and social deprivations, but its cost to families is our most considerable

national deficit. The prevalence of children who are exposed to parental substance use is

significant. The extensive use of alcohol and other drugs (AOD) by parents intensifies

social ills such as homelessness, violence, abuse and neglect, and economic depression

(Young, Gardner, & Dennis, 1998). Families are to protect their household, yet many

children and youth are left defenseless, endangered, exposed, helpless, powerless, and

vulnerable due to substance use disorders (Young et al., 1998). The child welfare

community cannot carry out its mandate of protection without communicating and

laboring among other professionals from disciplines like substance use prevention and

treatment, mental health, juvenile justice, public assistance, and domestic violence.

Collaboration among systems is a method to produce effective innovations in program

development, practice, and policies and to prevent child maltreatment with families who

are impacted by alcohol and other drugs (AOD).

Prevalence of Substance Use

In 2016, over 20 million people had a substance use disorder in the United States

(Substance Abuse and Mental Health Services Administration [SAMHSA], 2017).

Alcohol use disorder accounted for 15.1 million, and illicit substance use disorders

accounted for 7.1 million (SAMHSA, 2017). The two most commonly used substances

are marijuana and prescription pain relievers utilized nonmedically (SAMHSA, 2017).

In 2016, there were 24 million current marijuana users and 3.3 million current misusers of prescription pain relievers (SAMHSA, 2017). An estimated 10.5%, or 7.5 million, of all U.S. children from 2005-2010 lived with a parent who used alcohol and illicit substances (U.S. Department of Health and Human Services [USDHHS], Center for Behavioral Statistics and Quality, 2012). Similarly, the National Survey on Drug Use and Health found that between 2002-2007, 8.3 million (11.9%) children in the United States under the age of 18 resided with a parent who had a substance use disorder (SAMHSA, Office of Applied Studies, 2009). For children under five, the rate increases to 14% (SAMHSA, Office of Applied Studies, 2009). Wulczyn, Ernst, and Fisher (2011) reported that an estimated 61% of infants and 41% of older children in out-of-home care had a caregiver who identified as using alcohol or other drugs. An estimated 35.9% of these children are five years of age or younger (Appleyard, Berlini, Rosanbalm, & Dodge, 2011), and almost two thirds of adults enrolled in substance use treatment are parents (Niccols et al., 2012). In 2016, approximately 34% of the foster care cases had substance use by a parent as the circumstance associated with the child's removal (USDHHS, 2017). For 2016, it is nationally estimated that 1,750 children died of abuse and neglect, and 15% of those fatalities were associated with a caregiver who had a risk factor of substance use disorder (USDHHS, 2017).

Substance Use and Child Welfare

Parental substance use is associated with deleterious clinical outcomes for children such as mental health and substance use issues, unwarranted financial expenses for the child welfare system from investigating, monitoring, and foster care placements,

and imminent costs to society like family disintegration as the cycle of abuse continues (Swenson et al., 2009).

Children of families who are impacted by substance use, despite being provided linkages to comprehensive services, were still more likely to reenter foster care after reunification compared to families absent of substance use (Brook & McDonald, 2007). Parental substance use, often accompanied by other risk factors, places the family at risk for the occurrence of child maltreatment, especially neglect, stemming from maladaptive parenting practices and a tumultuous environment. Parents who are drug users are more likely to utilize demanding or coercive parenting styles, to provide less supervision, and to rely on more punitive forms of discipline which result in child maltreatment (Kandel, 1990; Walsh, MacMillan, & Jamieson, 2003).

According to SAMHSA's National Survey on Drug Use and Health, between 2007 and 2014 the prevalence of those who misused prescription drugs, new users of heroin, and those with heroin dependence increased significantly (SAMHSA, 2014). As the rates of opioid use increased among individuals of all ages and backgrounds, it is not surprising that the rates also increased among pregnant women and women of child-bearing age (SAMHSA, 2014). Combined data from 2012-2013 found that of pregnant women aged 15-44, 5.4% were past month current illicit substance users, and 9.4% reported current alcohol use (SAMHSA, 2014).

The striking rise in opioid use, addiction, and overdose has a significant impact on the child welfare system. Reports indicated that as recently as five years ago, the total rates of children in foster care were declining (Falletta et al., 2018). An abrupt incline in opioid overdose deaths occurred between 2013 and 2014, while there was a 3.5%

increase in the number of children in foster care totaling 415,129 (Rudd, Aleshire, Zibbell, & Gladden, 2016; Wiltz, 2016). Between 1999 and 2014, cases of alcohol or other drug use as the indicated reason for child removal more than doubled (National Conference of State Legislators, 2019). Additionally, between 2000 and 2012, the crisis of neonatal abstinence syndrome (NAS) had a five-fold increase and impacts 5.8 out of every 1,000 births nationally (Patrick, Davis, Lehmann, & Cooper, 2015).

As a result of parental substance use, children are at risk for child maltreatment and subsequent foster care placement. Child maltreatment is a public health issue. According to the Child Abuse Prevention and Treatment Reauthorization Act of 2010 (CAPTA; P.L. 111-320), child abuse and neglect is defined as:

Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act, which presents an imminent risk of serious harm.

In 2016, approximately 605,000 children were confirmed to be victims of maltreatment (USDHHS, 2018). Three-quarters (74.8%) of victims were neglected, 18.2% were physically abused, and 8.5% were sexually abused (USDHHS, 2018). There were approximately 437,465 children in foster care in 2016 nationally (USDHHS, 2017). An estimated 18% of the total number of children in foster care was less than one year old at the time of entry (USDHHS, 2017).

Literature supports that parental substance use was identified as one of the significant predictors for child maltreatment (Dubowitz et al., 2011; Kelley, Lawrence, Milletich, Hollis, & Henson, 2015). Previous research posits that children with parents who use alcohol and other drugs (AOD) have a higher probability of continued

involvement with child protective services (Laslett, Room, Dietze, & Ferris, 2012; Smith & Testa, 2002). With increased involvement with the foster care system due to parental substance use, permanency planning can be difficult with this population. Permanency can be defined as successful discharge from child welfare services through various forms of reunification to biological parents, living with other relatives, adoption, guardianship, and emancipation. Families affected by alcohol and other drug use have deleterious child welfare and permanency outcomes.

Parents with substance use disorders have been associated with other negative child welfare outcomes, such as lower probability of reunification (Courtney & Hook, 2012; McDonald, Poertner, & Jennings, 2007), a greater likelihood of termination of parental rights (Harris-McKoy, Meyer, McWey, & Henderson, 2014), higher probability of continued involvement with child protective services (Laslett et al., 2012), and longer stays in foster care (Brook, McDonald, Gregoire, Press, & Hindman, 2010; Green, Furrer, Worcel, Burrus, & Finigan, 2007; Vanderploeg et al., 2007). In addition, AOD parents have a greater likelihood of their parental rights being terminated (Harris-McKoy et al., 2014; Hser et al., 2003). As a result, children of AOD parents are more likely to be adopted (Cheng, 2010; Vanderploeg et al., 2007).

Child maltreatment is not the only adverse outcome for children with substance abusing parents. Children whose parents use alcohol or illicit substances are impacted physically, mentally, and socially. Osborne and Berger (2009) found that children who lived with an AOD parent were at high risk for poor health and behavior outcomes and that the risk level increases when both parents have substance use problems. Children of AOD parents are five times more likely to have experienced a traumatic event coupled

with a stress reaction than children who were not exposed to a parent's substance use (Sprang, Staton-Tindall, & Clark, 2008). The impact of parental substance use has a unique impact on infants and young children. Especially for children under the age of six, the mother-child relationship is critical. Children ages six and under are a group of unmatched risk for child maltreatment; the largest in this group are under the age of one (USDHHS, 2018). The U.S. Department of Health and Human Services, Children's Bureau (2015) reported that parental substance use impacts childhood development in the following ways: disrupted attachment, depression, anxiety, psychiatric disorders, becoming parentified, and presenting with internalizing and externalizing behaviors. Prenatal drug exposure has been linked to difficult temperament including irritability, sleep and feeding issues, excessive crying and gastrointestinal problems, fever, and seizures (Conners, Bradley, Whiteside-Mansell, & Crone, 2001; Jansson & Velez, 1999).

Child Welfare Legislation

The adverse impact of parental substance use on children resulted in stricter federal policies to ensure that children languishing in the foster care system would attain permanency within swifter timeframes. The Adoption and Safe Families Act (ASFA) of 1997 established timeframes which required the courts to set all permanency hearings within 12 months from the date of removal and allows the child welfare worker to initiate termination of parental rights if a child is in foster care for 15 out of 22 months (Adoption and Safe Families Act, 1997; P.L. 105-89). Children who are placed in foster care for more than 10 months have a decreased likelihood of being reunified (Akin, 2011; Connell, Katz, Saunders, & Tebes, 2006). After the implementation of the Adoption and Safe Families Act, children spent less time in foster care, were placed in permanent

settings more quickly, and were more likely to be adopted than remain in long-term foster care (Rockhill, Green, & Furrer, 2007).

Although this legislation desired to improve permanency outcomes for children, it also created a political pressure to find permanent homes for children who have been removed within an expedited time frame. This pressure-filled circumstance does not create a conducive atmosphere for AOD parents as substance use disorder (SUD) treatment requires an ample amount of time to commit to the recovery process (Dauber, Neighbors, Dasaro, Riordan, & Morgenstern, 2012). Requiring mothers to make a decision between caring for their children or completing SUD treatment represents considerable barriers that place mothers in an unfortunate situation where either choice would be viewed as wrong by an authority figure as child protective services (CPS) in whose hands both the mother and the child's future depends (Jansson & Velez, 1999). Fear of losing custody or decisions to enter treatment or care for their children may result in not seeking out treatment and leaving treatment early (Jansson & Velez, 1999; Niccols & Sword, 2005).

Federal laws recognized the special need for substance exposed infants. Therefore, changes to the Child Abuse Prevention and Treatment Act of 1974 (CAPTA) in 2003 mandated that states must have a plan to address the needs of substance exposed infants, including requirements to make appropriate referrals to CPS and other appropriate agencies and develop a plan of safe care for affected infants. In 2010, Congress amended the law by adding fetal alcohol spectrum disorder. In addition, the Comprehensive Addiction and Recovery Act (CARA) of 2016 was enacted and amended CAPTA to eliminate the term "illegal" as applied to substance use affecting infants and

implemented the requirement for plans of safe care that will address the needs of both infants and their families or caregivers (USDHHS, 2018). In addition, CARA added requirements relating to data collection and monitoring (USDHHS, 2018). As a component of the data collection, states will have to report the number of infants who received a plan of safe care and the number of infants for whom a referral for appropriate services was made, including services for the family or caregiver (USDHHS, 2018).

Other legislative policies impact the issue of parental substance use. Legislation such as the Child and Family Services Improvement Act of 2006 (P.L. 109-288) sought to promote the betterment of the lives of abused and neglected children impacted by a parent's substance use disorder. The most recent child welfare federal legislation is the Families First Prevention Services Act of 2018 which sought to make allowances for Title IV-E funding, originally only used for reimbursement for foster care children, to be used for preventative evidence-based services to include (1) mental health and substance use treatment for parents and (2) in-home parenting services. The aim of this act is to maintain children safely with their families and prevent the traumatic experience of entering foster care and highlights how detrimental it is for children to grow up in the least restrictive family setting. It also addresses parental opioid and other substance use by reauthorizing the Regional Partnership Grant program, which provides financial support to state and regional grantees seeking to provide evidence-based services to prevent child maltreatment related to substance use as a means to address the recent increase in child welfare involvement due to opioid and other drug use.

Interagency Collaboration

Often, there is a lack of coordination between substance use treatment services and child welfare services. D'Andrade and Nguyen (2014) found that substance abusing parents who engaged in substance use services, parenting, or counseling services increased the likelihood of reunification. When researchers focused on exploring systemic barriers to reunification for parents with substance use issues, they discovered problems with coordination between child welfare and SUD treatment and recovery providers (Smith, 2002). Therefore, interagency collaboration was identified as a strategy to assist this population.

Significance to Social Work

This epidemic impacts the family, particularly the children, in a devastating way. Parental substance use is an increasing factor in reports of child abuse and neglect. To address this issue, programs were funded to address methamphetamine and other illicit substance use and to improve permanency outcomes. Social workers have both the responsibility to be competent in knowledge, skills, and practice models that will best serve clients. In addition, social workers should promote and facilitate evaluation and research to contribute to the knowledge base. Although there are several studies that have examined the impact of substance use on child maltreatment, empirical data on effective programs is missing from the field. This study is imperative to child welfare research to continue the stream of funding for the much-needed integrated programs. In addition to adding new knowledge to the field, social work practitioners, administrators, social work educators, social work students, and politicians will have a foundation for advocacy that

is necessary for progression in the area of illicit substance use among families in child welfare.

Purpose of the Study

The purpose of this study was to examine the relationship between substance use and reunification in families involved in the child welfare system. The relationship between reunification and demographic characteristics of both the mothers and children was investigated. The unique variables considered were primary substance problem, prior child welfare history, service engagement, and substance use characteristics.

Chapter 2: Literature Review

This chapter reviews the literature and addresses the theoretical framework.

The USDHHS Administration on Children and Families have seven federal child welfare outcomes: (1) reduce recurrence of child abuse and/or neglect, (2) reduce the incidence of child abuse and/or neglect, (3) increase permanency for children in foster care, (4) reduce time in foster care to reunification without increasing reentry, (5) reduce time in foster care to adoption, (6) increase placement stability, and (7) reduce placements of young children in group homes or institutions (USDHHS, 2018). A child achieves permanency when the child is documented as discharged from foster care to one of the four permanency outcomes: (1) reunification with a parent or primary caregiver, (2) living with other relative, (3) living with a legal guardian, (4) legally adopted (USDHHS, 2018). In FY 2017, the number of children in foster care was 442,995 (USDHHS, 2018). An estimated 247,631 children exited foster care during FY 2017 (USDHHS, 2018).

Reunification is the first permanency option for state and federal agencies to pursue and the most beneficial option since children are able to maintain existing attachments. Reunification services can include family preservation, parenting, mental health, substance use, and domestic violence treatment. According to the Adoption and Foster Care Analysis Reporting System (AFCARS) FY 2017 data, 49% (n = 121,203) of children were reunified with their parent(s) or primary caretaker(s).

Impact of Illicit Substances on Reunification

Children of AOD parents are almost three times more likely to be physically or sexually abused and more than four times as likely to be neglected by their parents

compared to children of parents who are not using substances (National Center on Addiction and Substance Abuse at Columbia University, 1999). Similarly, Kepple (2018) explored a sample of 2,100 parents of children ages 2-17 from the National Survey of Child and Adolescent Wellbeing, and findings revealed that light to moderate drinking, risky and/or harmful substance use, and SUDs were associated with a higher yearly incidence of physical abuse. Higher yearly incidence of neglect was associated with past year use only (Kepple, 2018). The yearly incidence of neglect lowered when parents reported a prior SUD combined with reduced use (Kepple, 2018). Furthermore, Grella, Hser, and Huang (2006) compared 1,939 mothers involved in the child welfare system and 2,217 mothers who were not involved with child welfare to examine differences. Higher alcohol severity was associated with a lower likelihood of child welfare involvement (Grella et al., 2006).

In addition, child removal due to substance use results in the lowest probability for achieving family reunification (Green, Rockhill, & Furrer, 2007; Lloyd, Akin, & Brook, 2017). Brook et al. (2010) examined a sample of 28,978 children and divided them into the following four categories for the reason for removal: alcohol use only, drug use only, alcohol and other drug use, and neither alcohol nor drug use. Brook et al. (2010) found that children whose parents used neither alcohol nor drugs were more likely to reunify.

More specifically, the primary substance problem impacts reunification. Parents who use methamphetamine only was the slowest group to reunify (Carlson, Williams, & Shafer, 2012; Lloyd & Akin, 2014). In a sample of 1,911 women, Green et al. (2007) asserted that 47% were methamphetamine users, 25.4% alcohol users, 15% marijuana

users, and almost half (44.8%) of the women were heavy users. In a sample of 16,620 children who entered foster care over a five-year period, Akin, Brook, and Lloyd (2015) found that methamphetamine, other drugs, and polysubstance with methamphetamine use were all associated with lower rates of reunification. Mothers whose primary drug was heroin were significantly less likely to be reunified with their children compared to mothers whose primary drug was alcohol (Grella, Needell, Shi, & Hser, 2009). Reunification rates are lower for both heroin/opiates and cocaine as compared to alcohol use (Choi & Ryan, 2007). Illicit substances had a greater impact on reunification rates than alcohol (Lloyd & Akin, 2014).

Children of parents who used drugs only or alcohol and drugs experienced longer lengths of stay in foster care (Brook et al., 2010). Vanderploeg et al. (2007) examined a sample of 1,333 children with AOD parents and a matched comparison group of 4,554 children who had no drug use involved in the case. AOD children had a longer length of stay, 13.9 months, than the matched comparison group, 10.9 months (Vanderploeg et al., 2007). Green et al. (2007) concluded that the average length of stay for children with AOD parents in foster care was 439 days. Children whose parents used drugs only and alcohol and drugs stayed in foster care 100 more days than children whose parents used alcohol only and 200 days more than for the neither group (Brook et al., 2010). Similarly, children removed due to any parental drug use stay in foster care for an average of 49-156 days longer than their peers (Lloyd & Akin, 2014).

Another child welfare outcome impacted by substance use is the length of time the child discharges from foster care to be reunified. Wulczyn, Chen, and Courtney (2011) posit that the likelihood of achieving reunification is highest within six months

following the initial foster care placement. As children stay in foster care longer, the probability of achieving reunification decreases. Wulczyn et al. (2011) asserted that 2% of children achieve reunification at year four in foster care. Therefore, it is important to examine the factors that impact timeliness of reunification. Drug use can impact the time to reunification. Twomey, Miller-Loncar, Hinckley, and Lester (2010) found that the 59% of the infants in their study were reunified within six months after the initial removal episode at birth. By 12 months, 86% of the infants had a permanent placement, and the average time to reunification was 20 months (Twomey et al., 2010).

Substance Use Characteristics

A national examination of public child welfare agencies indicated that only 31% of parents in their systems with an assessed need for substance use treatment actually receive any SUD services (Child Welfare League of America, 1997). AOD parents are at times not referred for SUD services (Staudt & Cherry, 2009) and, if parents are referred, their treatment participation and completion rates are far lower than the population of clients receiving substance use treatment in general. Maltreated children of parents who do not receive necessary treatment for substance use have a higher likelihood to enter foster care, remain in foster care longer, and re-enter foster care after they have returned to the family (USDHHS, 1999).

By the same token, in 1998, the U.S. General Accounting Office presented a report for the U.S. Senate Committee on Finance concerning the challenges facing child welfare agencies serving children whose parents have a substance use disorder. The report stated that of parents required to receive SUD treatment as part of their service plan, 64% completed an intake for services, 50% attended some treatment, and only 13%

completed treatment. Sobriety can be a predictor for reunification. Gregoire and Schultz (2001) posit that the participants in their study with sobriety at nine months after the referrals were more likely to keep or regain child custody and to maintain parental rights than were clients without sobriety.

Women who entered treatment quicker, spent more time in treatment, and who completed at least one treatment were more likely to reunify, and their children spent fewer days in foster care (Green et al., 2007). Choi and Ryan (2007) concluded that there is a higher likelihood of reunification rates when mothers utilize SUD treatment services. There is a significant relationship between SUD treatment and reunification. In a sample of 402, Twomey et al. (2010) found that 81% had a prior history of SUD treatment, 54% had at least one residential program admission, and 54% had received mental health services. Choi and Ryan (2006) studied a sample of 871 caregivers, and findings revealed that 63% had prior exposure to SUD treatment. Mothers who completed at least one treatment had a higher rate of family reunification (Choi, Huang, & Ryan, 2012).

The time to treatment can also impact reunification. Green et al. (2007) found that the longer it took mothers to enter treatment, the longer children tended to stay in foster care. In this study, the average time to SUD treatment enrollment was four months. Those mothers who were enrolled in SUD treatment faster increased the likelihood of reunification (Green et al., 2007). Mothers who achieved reunification stayed in treatment longer than mothers whose children were adopted (Green et al., 2007).

In regard to type of SUD treatment, Hser et al. (2003) reported that among parents in outpatient treatment, 29% had a child removed; among patients in residential treatment, 53% had a child removed; and among parents in narcotic treatment (primarily

methadone maintenance), 80% had a child removed. In a sample of 62 families enrolled in family treatment drug court, there was a higher level of reunification for those in outpatient treatment (77%) than for those in residential treatment (50%; Cosden & Koch, 2015). Green et al. (2007) found that in a sample of 1,911 women, 21.3% had a substance use treatment episode in residential treatment within three years prior to a child welfare case, and 78.6% were in outpatient treatment. Twomey et al. (2010) concluded that 54% of their sample had at least one residential treatment admission. The type of treatment can have an impact on reunification. Huang and Ryan (2011) examined a sample of 160 mothers, and findings revealed that mothers who received treatment at a residential treatment center only had the lowest reunification rates after 15 months. Mothers who received types of treatment other than residential had the highest reunification rates after 15 months (Huang & Ryan, 2011).

SUD treatment completion can predict the achievement of reunification. Treatment completion was the strongest predictor of reunification (Green et al., 2007). Choi et al. (2012) examined a sample of 1,720 caregivers and 2,249 children from a subset of data from the Illinois Title IV-E Alcohol and Other Drug Abuse (AODA) waiver demonstration. Findings indicated that a higher treatment completion ratio was significantly associated with the likelihood of family reunification (Choi et al., 2012). Children whose mothers achieved substantial or complete progress in substance use were 2.1 times more likely to be reunified with their biological mothers (Choi et al., 2012). Mothers who completed treatment or made substantial progress in SUD treatment were 15.7 times more likely to achieve reunification (Huang & Ryan, 2011).

Similarly, Cosden and Koch (2015) posit that time in treatment was associated with reunification; families with successful reunification averaged more days in treatment than did those who did not reunify. Similarly, Green et al. (2007) found that children whose parents completed at least one treatment episode had significantly shorter stays in foster care (Green et al., 2007). The average number of days in treatment was 238 during the child welfare case (Green et al., 2007). Number of days in treatment and treatment completion significantly predicted reunification (Green et al., 2007). The total number of treatment episodes completed significantly increased the rates of family reunification (Choi et al., 2012).

Service Engagement Characteristics

Often, parents struggling with substance use are also dealing with a complex array of other issues such as mental health issues, vocational or educational needs, or inadequate parenting skills, and lack concrete resources such as housing, child care, and transportation (Choi & Ryan, 2006). Financial assistance and housing services received by parents involved in child welfare was associated with family reunification (Cheng & Li, 2012). Cheng (2010) asserted an association to a higher likelihood of reunification when parents' issues with housing and finances were addressed through well matched delivered services. However, a need for domestic violence services had a negative impact on the likelihood of family reunification (Cheng, 2010).

The most significant predictor of loss of custody was cumulative risk, which was a summation of the following risk factor scores: substance use, psychiatric history, and conviction history (Larrieu, Heller, Smyke, & Zeanah, 2008). Investigating factors that

are associated with better outcomes for parents who use alcohol and other drugs is important. Improvement of co-occurring problem areas did increase the likelihood of achieving family reunification (Marsh, Ryan, Choi, & Testa, 2006). Therefore, child welfare systems need to increase services targeting the specific needs of families in order to facilitate progress within co-occurring problem areas.

For this population, service utilization is associated with a higher probability of reunification. Green et al. (2007) posit that parents who complete at least one treatment occurrence were more likely to be reunified with their children than those who do not engage in such treatment. Literature supports that service linkages in mental health, housing, family counseling, and SUD treatment significantly increased the likelihood of family reunification (Choi & Ryan, 2007). D'Andrade and Nguyen (2014) found that substance using parents who engaged in SUD services, parenting, or counseling services increased the likelihood of reunification. Multiple service linkages can improve reunification rates. When transitional services were combined with residential treatment, reunification rates increased (Huang & Ryan, 2011). When researchers focused on exploring systemic barriers to reunification for parents with substance use issues, they discovered problems with coordination between child welfare and substance use treatment providers (Smith, 2002).

Interagency collaboration has been shown to positively impact reunification rates. The Vulnerable Infants Program of Rhode Island is a care coordination program that promotes permanency for substance exposed newborns. Twomey et al. (2010) concluded that at discharge, in a sample of 1,911 women, 61% of the infants were reunified, 14%

were placed with relatives, 19% were placed with non-relatives, and 5% were adopted.

Family drug treatment court (FDTC) is a recently implemented child welfare intervention

for children whose parents use illicit substances. FDTC utilizes reinforcement and

punishment through legal proceedings and drug screens to reinforce abstinence and

punish drug usage (Chuang, Moore, Barrett, & Young, 2012). In a sample of 302 families

enrolled in FDTC and 1,200 families in a matched group who did not receive services,

findings indicated that FDTC participants entered SUD treatment quicker, spent more

time in treatment, and FDTC children spent less time in foster care and were more likely

to achieve reunification (Worcel, Furrer, Green, Burrus, & Finigan, 2008). Similarly,

Chuang et al. (2012) posit that FDTC increases a family's likelihood of reunification and

decreased the odds of their children re-entering foster care within 12 months after

reunification. They also found that FDTC participants were twice as likely to reunify

when compared to the matched group. Bruns, Pullman, Weathers, Wirschem, and

Murphy (2012) found that FDTC children spend less time in foster care, ended child

welfare involvement sooner, and were more likely to reunify.

Substance use is not the only need of the families involved in the child welfare

system. Parents whose children were placed in out of home placement need assistance

with transportation, clothing, financial assistance, finding housing, obtaining a GED, and

finding and keeping a job (Marcenko, Lyons, & Courtney, 2011). More than two thirds of

parents needed medical services, 66% needed parenting assistance, 60% needed mental

health services, and 41% needed substance use disorder services (Marcenko et al., 2011).

In addition, Marcenko et al. (2011) reported that 20.3% of caregivers who needed

medical services did not receive them, 16.6% of parents did not receive mental health

services, 14.9% did not receive parenting assistance and 3.9% did not receive SUD services.

Mental health and substance use can contribute to negative child welfare outcomes. Mothers with mental health issues reunited with their children at a slower rate than mothers without these issues (Wells & Guo, 2004). Small and Kohl (2012) concluded that 100% of the cases with African American caregivers who had mental health issues were substantiated for child maltreatment and subsequently removed. Parents with substance use disorders and depressive symptoms were found to be a significant predictor for the risk of child maltreatment (Kelley et al., 2015). Finally, families who are simultaneously experiencing multiple challenges or cumulative risks are associated with lower probabilities for reunification (Larrieu et al., 2008; Wulczyn, 2004).

Engagement in parenting services can impact reunification. Akin and McDonald (2018) examined the effects of the Parent Management Training Oregon Model (PMTO) with a sample of 461 participants in the program and 457 parents who received services as usual. The study's findings revealed that parents who engaged in the PMTO program had higher rates of family reunification and saved 151 days in foster care per child when compared to parents who received services as usual (Akin & McDonald, 2018).

Theoretical Framework

An ecological analysis is an overall approach to evaluating the relationship between human development and the environment (Bronfenbrenner, 1977). Bronfenbrenner's ecological systems analysis included the micro, exo, and macrosystems.

The microsystem describes the immediate environment. The exosystem describes informal and formal social structures. The macrosystem describes cultural values and belief systems. Belsky (1980) sought to integrate Bronfenbrenner's ecological theory on human development and Burgess's (1978) perspective of the ontogenic development in order to explain child maltreatment.

The ecological environments are understood as connections where changes in one system level will affect change on others. Belsky's (1980) conceptualization was utilized for this study to explore the interaction between various ecological factors that impact reunification. This perspective values the importance of considering factors as they relate to the family at multiple levels of analysis: (1) ontogenic development (individual), referring to the individual factors and characteristics of the child and mother; (2) the microsystem (family), consisting of the immediate settings and interactions influencing development; (3) the exosystem (community), a larger social system impacting the child; and (4) the macrosystem (societal), which refers to the values and beliefs of society that shape institutions. Figure 1 illustrates the integration of the framework and the variables.
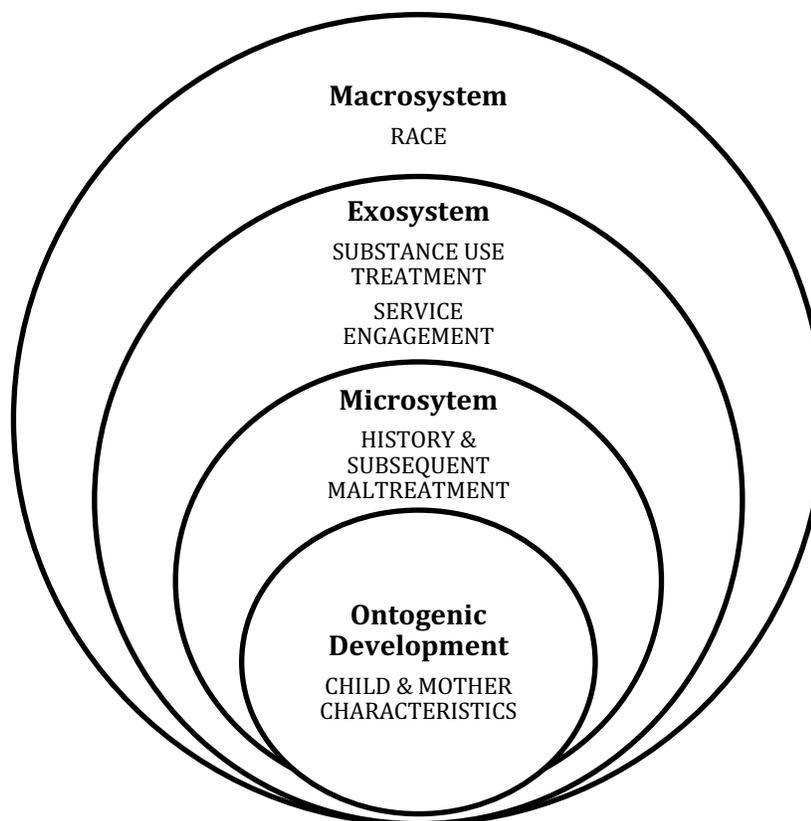
Figure 1: Theoretical framework and independent variables integration.

Ontogenic development.

These factors describe individual characteristics that may influence the interaction

that occurs in the immediate environment (microsystem). In the context of this study, this

would include the children and mothers' characteristics. The ontogenic development in

this study refers to how the child's age and gender, and the mother's age, educational

status, and employment impact reunification. In this project, the following child

characteristics/independent variables were examined: age, gender, race/ethnicity, and

whether the child was a prior victim of child maltreatment. In this study, the mother's

characteristics/independent variables examined were: age, race/ethnicity, marital status,

educational status, employment, source of income, living arrangement, whether or not the

mother was a previous caregiver, whether she was a perpetrator, whether or not

methamphetamine use was a contributing factor of the maltreatment case, primary substance problem, time to SUD treatment, SUD treatment admission, level of care, time in SUD treatment, SUD treatment completion, and number of prior SUD treatment episodes.

Microsystem.

The microsystem refers to the immediate setting that impacts the child's worldview, incorporating the existing household, the parent and child interactions, and influences of the family system itself (Belsky, 1980). The interactions that were investigated in this study included whether or not the child was a prior abuse victim, the mother's marital status, whether the mother was the primary caregiver, a prior perpetrator of maltreatment, and the primary substance problem. The interaction between the mother and child includes the parenting interaction. Prior research supports that substance use contributes to reduced parental capacity, reduced capacity to adequately supervise children, reduced impulsivity and emotion management among parents, reduced ability to understand child development, as well as exacerbation of behavioral problems among children (Marsh et al., 2006; Testa & Smith, 2009). Thus, parental substance use can lead to child maltreatment and CPS involvement. Child welfare cases with illicit substance use were more likely to be indicated for child maltreatment than cases without AOD use (Sun, Shillington, Hohman, & Jones, 2001). Children of AOD parents are almost three times more likely to be physically or sexually abused and more than four times as likely to be neglected by their parents compared to children of parents who are not using substances (Cunningham & Finlay, 2013; National Center on Addiction and Substance Abuse at Columbia University, 1999; Young, Boles, & Otero, 2007).

Exosystem.

The exosystem is a greater social system and refers to differing subsystems such as local government, policy, supports/services for the family, parent's workplace or friendship network (Bronfenbrenner, 1979), and the neighborhood (Belsky,1980). The exosystem can be described as the impact of social institutions and other services on the how they govern parent-child behaviors. This study examined the impact of SUD treatment on reunification. Level of care, time to SUD treatment, time in SUD treatment, and SUD treatment completion were the SUD treatment characteristics/independent variables that were explored in this study. In addition, whether or not the mother-initiated services of domestic violence, employment/ vocational, housing, mental health, and parent education/training were all explored in this study. The assumption is that SUD treatment utilization will change the mother's behaviors and thus change the interaction between the mother and child in order to result in family reunification.

For this population, service utilization is associated with a higher probability of reunification. Green et al. (2007) found that parents who complete at least one SUD treatment occurrence were more likely to be reunified with their children than those who do not engage in such treatment. Similarly, D'Andrade and Nguyen (2014) found that substance using parents who engaged in SUD, parenting, or counseling services increased the likelihood of reunification. When researchers focused on exploring systemic barriers to reunification for parents with substance use issues, they discovered problems with coordination between child welfare and substance use treatment providers (Smith, 2002).

Macrosystem.

The macrosystem represents an even greater level of analysis that includes all systems discussed thus far. This level is more difficult to address (Belsky, 1980). This level contains general ideological patterns, values, and belief systems of society that are the foundation of the dominant institutions. Although race can be considered an individual characteristic, in this study it was conceptualized as a macro factor. The disproportionality of African American children in child welfare supports this conceptualization. African American children are disproportionately overrepresented in the U.S. child welfare system; although black children account for only 13.7% of the nation's children, they make up 23% of the nation's foster care population (U.S. Department of Health and Human Services, 2018, 2019). Of equal consideration, African American mothers with substance use issues were at particularly high risk for not reuniting with their children (Hines, Lee, Osterling, & Drabble, 2007). The decision-making process has been shown to be affected by race. Chasnoff, Landress, and Barrett (1990) asserted that African American mothers with substance use issues are as much as 10 times more likely to be reported to child protective services and to have their infants removed than substance-abusing white mothers. Johnson, Clark, Donald, Pedersen, and Pichotta (2007) found that there was a 36% greater chance that the child protection worker would recommend removal from the home in cases with African American families with those families who were Caucasian. African American families had a greater probability of being investigated versus being dismissed (Dettlaff et al., 2011; Jones, 2015).

Chapter 3: Methodology

This chapter describes the methods that were used to study the characteristics associated the reunification of mothers and their children. It begins with a description of the research design, accompanied by the research questions, hypotheses, and description of the sample. Lastly, the chapter closes with the operationalization of the dependent and independent variables and the statistical methods used for the study.

Research Design and Data Source

The Child Welfare Outcomes Study consisted of a quantitative analysis of an administrative database, Targeted Grants to Increase the Well-Being of and to Improve the Permanency Outcomes for Children Affected by Methamphetamine or Other Substance Abuse (September 30, 2007-September 30, 2012). The data used in this study were made available by the National Data Archive on Child Abuse and Neglect, Cornell University, Ithaca, NY, and were used with permission. The information gathered in this dataset was investigated by Nancy Young, Ken DeCerchio, and Chad Rodi from Children and Family Futures and funded by the U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth, and Families, Children's Bureau.

The goal of this data collection was to provide services and activities that are designed to increase well-being, positive permanency outcomes, and enhance the safety of children who are in out of home placement as a result of a parent's or caretaker's methamphetamine or other substance use. This goal was to be achieved through interagency collaboration and integration of programs and services. The funding and goal

of the data collection was a direct result of the Child and Family Services Improvement Act of 2006.

The 53 grantees (called Regional Partnership Grants or RPGs) collected and reported on performance indicators for the child/youth, adult, family/relationship, and regional partnership/service capacity. The child/youth performance indicators were as follows: children remain at home, occurrences of child maltreatment, average length of stay in foster care, re-entries to foster care placement, timeliness of reunification, timeliness of permanency, prevention of substance-exposed newborns, children connected to supportive services, and improved child well-being. The adult performance indicators include access to substance use disorder (SUD) treatment, retention in treatment, reduced substance use, parents/caregivers connected to supportive services, employment, criminal behavior, and mental health status. The family/relationship performance indicators are as follows: improved parenting, family relationships and functions, risk/protective factors, coordinated case management, and substance use disorder education and training for foster care parents and other substitute caregivers. Lastly, the regional partnership/service capacity performance indicators include collaborative capacity and capacity to serve families. This study utilized the data to investigate some of the indicators listed above.

The administrative data, Targeted Grants to Increase the Well-Being of and to Improve the Permanency Outcomes for Children Affected by Methamphetamine or Other Substance Abuse, had 53 grantee participants from 29 states (Alaska, Arizona, California, Colorado, Florida, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Massachusetts, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, New York, North

Carolina, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Texas, Vermont, Washington, and Wisconsin). This dataset included information on more than 15,000 families comprised of more than 25,000 children and 17,000 adults. The data were collected from October 1, 2007-December 31, 2014. Each grantee submitted standardized case level client demographic information and other required data elements to calculate these measures in a systematic file format to ensure consistency across grantees. A performance monitoring approach was utilized to provide an account on key performance measures. HHS implemented a mixed methods performance measurement approach. This approach utilized multiple quantitative and qualitative data sources to provide a comprehensive descriptive and analytical picture of the 53 grantees' performance.

Each site utilized their own sampling strategy which was outlined in a document provided as a supplemental appendix provided to this researcher. The unit of observation is a case which consists of a case identifier, family identifier, adult identifier, and children identifier. There were 3,358 records which had missing identifiers and were excluded for this study.

Target Population/Sample

The study sample consisted of families who experienced a child removal from the mother's physical custody and then separated by type of sibling:, youngest, oldest, or only children. The case, child, adult, and family identification variables were used to create these stratification groups. Figure 2 describes the numerical breakdown of the sample.
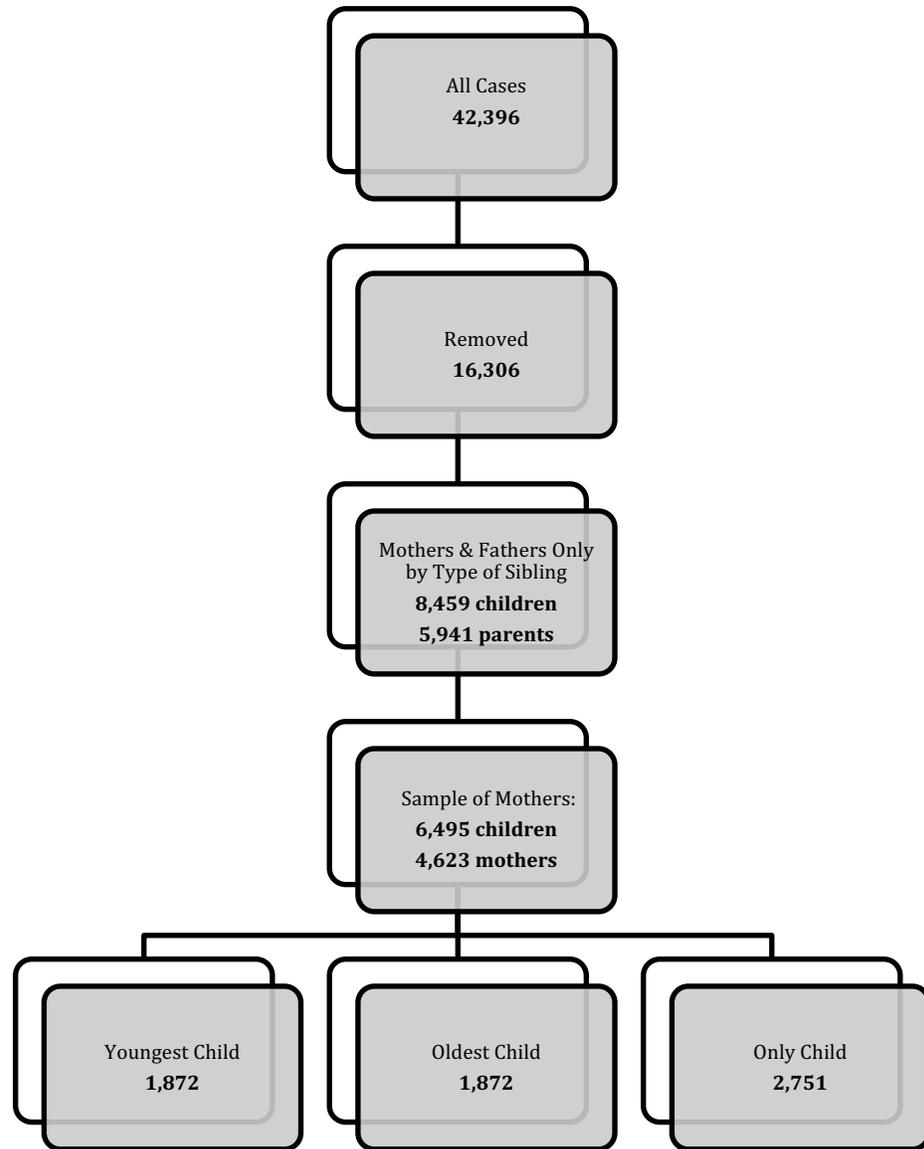
Figure 2: Numerical breakdown of the sample.

Research Questions and Hypotheses

The following overarching questions were considered: (1) what characteristics of children and mothers are associated with reunification and timeliness of reunification, and (2) which characteristics remained significantly associated with reunification and timeliness of reunification after adjustments were made for the other respective

characteristics? In addition to the overarching questions, answers to the following were sought:

1. What is the relationship between the child's socio-demographic characteristics (age, gender, race/ethnicity, whether or not the child was a victim of prior abuse) and permanency outcomes (reunification status and timeliness of reunification) in a sample of families involved in the child welfare system?

2. What is the relationship between the mother's socio-demographic characteristics (age, race/ethnicity, marital status, education, employment, source of income, prior perpetrator, whether or not the parent was a primary caregiver and had subsequent child maltreatment) and permanency outcomes in a sample of families involved in the child welfare system?

3. What is the relationship between the mother's substance use characteristics (whether methamphetamine use was a contributing factor to the maltreatment, primary substance problem, time to SUD treatment, treatment admission status, level of care, time in treatment, treatment completion status, and number of prior treatment episodes) and permanency outcomes in a sample of families involved in the child welfare system?

4. What is the relationship between the mother's service engagement characteristics (domestic violence, employment/vocational, housing, mental health, parent training/education) and permanency outcomes in a sample of families involved in the child welfare system?

Research Hypotheses:

1. There is a significant association between child's characteristics and permanency outcomes (reunification of mother and child and timeliness of reunification in a sample of families involved in the child welfare system).

2. There is a significant association between mother's characteristics and permanency outcomes (reunification of mother and child and timeliness of reunification in a sample of families involved in the child welfare system).

3. There is a significant association between substance use characteristics and permanency outcomes (reunification of mother and child and timeliness of reunification in a sample of families involved in the child welfare system).

4. There is a significant association between service engagement characteristics and permanency outcomes (reunification of mother and child and timeliness of reunification in a sample of families involved in the child welfare system).

Corollary to the Research Hypothesis (1) - (4)

*   When the joint impact of selected socio-demographic characteristics of the children and mothers, substance use, and service engagement characteristics of mothers are taken into account, each respective variable will remain a significant predictor of permanency outcomes (reunification of mother and child and timeliness of reunification).

Null Hypotheses

*   There is not a significant association between mother and child characteristics, substance use, service engagement, and permanency outcomes (reunification of mother and child and timeliness of reunification).

Independent and Dependent Variables

The independent variables for the study were categorized as: (1) child's socio-demographic characteristics: age, gender, race/ethnicity, and prior abuse victim (see Chart 1); (2) mother's socio-demographic characteristics: age, race/ethnicity, marital status, educational status, employment status, source of income, living arrangement, whether or not the mother was a primary caregiver, a prior perpetrator of maltreatment, and had a subsequent report of child maltreatment (see Chart 2); (3) mother's substance use characteristics: primary substance problem, time to treatment, time in treatment, treatment admission status, level of care, treatment completion status, number of prior treatment episodes (see Chart 3); and (4) mother's service engagement characteristics: domestic violence, employment/vocation, housing services, mental health, and parenting education, mental health (see Chart 4). The dependent variables for the study were reunification status and timeliness of reunification of the child and the mother (see Chart 5).

Statistical Methods

This study sought to determine the relationship between mother and child socio-demographic, substance use, service engagement characteristics (independent variables), and permanency outcomes (dependent variables). First, descriptive statistics were used to describe the sample. Bivariate analyses-logistic regression was then used to determine whether there were significant relationships between the independent and dependent variables (see Chart 6). Multiple logistic regression was used to determine the significant relationships between the dependent variables and all of the significant independent variables that were identified from the bivariate analyses (see Chart 7). In addition, only

the variables that had 20% or less missing values were eligible to be included in the

multiple logistic regression models. Analysis for substance use and service engagement

characteristics was conducted separately because of the high rate of missing values that

diminished the sample by 60%, 66%, and 75% for oldest, youngest, and only children,

respectively. Similar rates of missing values were reported for service engagement

characteristics.

Chart 1

Definition and Operationalization of the Child's Independent Variables: Socio-demographics

Independent Variables	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Demographics	The variables were age, gender, and race/ethnicity.	Various	Nominal
Child Prior Abuse Victim	This variable identified as whether a child was a prior victim of substantiated/indicated maltreatment that occurred before outreach and engagement in the RPG program (i.e. it was a past incident that is not associated with reasons for involvement in the RPG program)	0=No 1=Yes	Nominal

Chart 2

Definition and Operationalization of the Mother's Independent Variables: Socio-demographics

Independent Variable	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Demographics	The variables were age, race, ethnicity, and gender	Various	Nominal
Marital Status	Parent's marital status at the time of entry to RPG or substance use treatment. Now married included common law marriage and those living together as married. Separated included those who were legally separated or otherwise absent from their spouse because of marital discord.	1=Never married 2=Now Married 3=Separated/Divorced/ Widowed	Nominal
Education	Level of education completed by the mother at the time of entry to RPG program or substance use treatment.	1=Less than 12 years of education 2=More than 12 years of education	Nominal
Employment Status	Mother's employment status at the time of entry to RPG program or substance use treatment. It includes employment at the full-time level, part-time level, unemployment, and not in labor force. Employed includes both full-time defined as working 35 or more hours each week, and part-time defined as working less than 35 hours a week. Not in the labor force includes individuals who are homemakers, students, disabled, retired, or inmates of an institution.	1=Employed, includes full-time and part-time employment 2=Unemployed 3=Not in labor force	Nominal
Source of Income/Support	Mother's primary source of income/financial support at the time of entry to RPG program or substance use treatment. This only reflects income generated by the mothers. This does not include income of a spouse, relative, etc. Other income includes alimony, child support, illegal income, or other income not specified.	1=Wages/salary 2=Public assistance 3=Other income (retirement, pension, disability, and other income included in definition) 4=No income	Nominal

Chart 2 (continued)

Definition and Operationalization of the Mother's Independent Variables: Socio-demographics

Independent Variable	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Living Arrangement	Mother's living arrangement or residential status at time of entry to RPG program or substance use treatment. Mothers indicated as homeless had no fixed address including shelters. Dependent Living were parents who were living in a supervised setting like a residential institution (jail/prison), halfway house or group home. Independent living included mothers who lived alone or with others without supervision.	1=Homeless 2=Dependent Living 3=Independent Living	Nominal
Primary Caregiver	Indicates whether the mother is the child's primary caregiver. A primary caregiver is a person who has consistent assumed responsibility for the housing, health, and safety of child(ren) and who carries out and oversees the tasks related to the daily lives of the child(ren) which includes caring for their physical, educational, social, emotional, and other needs. There can be more than one primary caregiver in the family.	0=No 1=Yes	Nominal
Prior Perpetrator	This variable indicates whether the mother is identified as a prior perpetrator of substantiated/indicated child maltreatment that occurred before outreach and engagement in the RPG program (i.e., it was a past incident that is not associated with reasons for involvement in the RPG program).	0=No 1=Yes	Nominal
Subsequent Maltreatment Indicated	This variable identified whether the child was the subject of a substantiated/indicated case of child maltreatment after entering RPG program or substance use treatment. This determination is based on the final finding or disposition of the maltreatment incident as substantiated or indicated by the responsible agency according to State law. Dispositions of alternative response	0=No 1=Yes	Nominal

Chart 3

Definition and Operationalization of the Mother's Independent Variables: Substance Use

Independent Variables	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Methamphetamine Use	This variable indicated whether the mother's methamphetamine use is a contributing factor to the risk of child maltreatment based on available case information.	0=No 1=Yes	Nominal
Primary Substance Problem	This variable was reported at treatment admission and primarily responsible for contributing to the mother's need for admission. The substances included alcohol, cocaine/crack, marijuana/hashish, heroin/other opiates (oxycontin/oxycodone, hydrocodone/Lortab), methamphetamine, other substance indicated - hallucinogens, other amphetamines/stimuli, benzodiazepines, barbiturates, other tranquilizers/sedatives, inhalants, and non-prescription methadone. Primary substance not indicated identifies mothers who entered treatment but their primary substance problem was not indicated for this variable.	1=Alcohol 2=Cocaine/crack 3=Marijuana 4=Heroin/opiates 5=Methamphetamine 6=Other substance indicated 7=Primary substance not indicated	Nominal
Time to Treatment	Days from when the child welfare case was opened until the mother was admitted into treatment.	The number of days was used to measure this variable.	Interval
Time in Treatment	This variable was computed using the mother's treatment admission and discharge date.	The number of days was used to measure this variable.	Interval
Treatment Admission	This variable indicated whether or not the mothers entered treatment.	0=Did not enter treatment 1=Entered treatment	Nominal
Level of Care	This variable is the level of care the mothers received at the time of treatment admission according to the five broad levels outlined in the American Society of Addiction Medicine's Patient Placement Criteria: Level 0.5 Early intervention, Level I Outpatient treatment, Level II Intensive outpatient/partial hospitalization, Level III Residential/inpatient treatment, Level IV Medically managed intensive inpatient treatment.	1=Early Intervention 2=Outpatient 3=Intensive outpatient 4=Residential treatment	Nominal
Treatment Completion Status	This variable indicates the outcome of treatment or the reason for transfer or discontinuance of treatment. The coding is according to TEDS (Treatment Episode Dataset). Did not complete treatment included: Left against professional advice (dropped out), Terminated by facility, Transferred to another treatment program but did not report, Incarcerated. Death and other discharge were not used for analysis.	0=Did not complete treatment 1=Still in Treatment 2=Treatment completion	Nominal
Number of Prior Treatment Episodes	This variable indicates the number of treatment episodes for the mother prior to and after RPG.	0=No treatment episodes 1=1 total treatment episode 2=2-5 total treatment episodes	Nominal

Chart 4

Definition and Operationalization of the Mother's Independent Variables: Service Engagement

Independent Variable	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Domestic Violence Services	Services were determined by the grantee according to their program model but may include services such as domestic violence prevention and treatment services, referrals to or provision of safe housing/shelter, trauma-informed and trauma-specific services, legal advocacy and assistance.	0=No, services were not initiated, or services were not identified as a need. 1=Yes, either initiated or continued/expanded (if already receiving upon RPG program entry)	Nominal
Employment or vocational training/ education services	Services were determined by the grantee according to their program model but may include services such as educational and vocational screening and assessment, pre-vocational counseling, basic life skill training, employment/vocational counseling, training and educational programs, and employment and vocational services.	0=No, services were not initiated, or services were not identified as a need. 1=Yes, either initiated or continued/expanded (if already receiving upon RPG program entry)	Nominal
Housing Services	Services were determined by the grantee according to their program model but may include services such as help with housing applications, advocacy, transportation, encouragement and motivation, understanding and complying with the housing program's regulations, assistance in obtaining safe, affordable, permanent housing, developing adequate independent living skills to maintain housing.	0=No, services were not initiated or services were not identified as a need. 1=Yes, either initiated or continued/expanded (if already receiving upon RPG program entry)	Nominal
Mental Health Services	This variable indicates whether or not mental health services were initiated with the caregiver. Mental health services were determined by the grantee according to their program model but may include services such as cognitive-behavioral therapy; individual therapy, family therapy and/or group therapy; services for depression, anxiety, affective and somatization disorders; therapy for trauma and PTSD.	0=No, services were not initiated or services were not identified as a need. 1=Yes, either initiated or continued/expanded (if already receiving upon RPG program entry)	Nominal
Parent Training/Education Services	Services were determined by the grantee according to their program model, but may include services such as parent counseling, parenting skills training, child development and care taking education and training, skill building.	0=No, services were not initiated or services were not identified as a need. 1=Yes, either initiated or continued/expanded (if already receiving upon RPG program entry)	Nominal

Chart 5

Definition and Operationalization of the Dependent Variables

Dependent Variables	Definition of the Variable	Operationalization of the Variable	Level of Measurement
Reunification Status	This variable uses the AFCARS discharge reasons and groups them into two groups: reunified or not. The category of not reunified includes children who are still in foster care, children who were adopted, children living with other relative or relative guardianship.	0=Not reunified 1=Reunified	Nominal
Timeliness of Reunification	This variable was calculated using the date that the child was placed in a foster care placement as well as the date of the most recent episode that the child was reunified with the mother (mother and child are physically together even if legal custody still resides with the state).	0=One year or less 1=13 months or more	Nominal

Chart 6

Bivariate Statistical Analysis

Dependent Variables	Independent Variables	Bivariate Analysis
Reunification status 0=Not reunified 1=Reunified Timeliness of Reunification 1=One year or less 2=13 months or more	<u>Child Characteristics</u> Age (nominal) Gender (nominal) Race/Ethnicity (nominal) Child Prior Abuse Victim (nominal)	Logistic Regression
	<u>Mother's Characteristics</u> Age (nominal) Race/Ethnicity (nominal) Marital Status (nominal) Educational Level (nominal) Employment Status (nominal) Source of Income/Support (nominal) Living Arrangement (nominal) Primary Caregiver (nominal) Prior Perpetrator (nominal) Subsequent Maltreatment (nominal)	
	<u>Substance Use Characteristics</u> Methamphetamine Use (nominal) Primary Substance Problem (nominal) Time to Substance Use Disorder Treatment (interval) Treatment Admission (nominal) Level of Care (nominal) Treatment completion status (nominal) Time in Treatment (interval) Number of Prior Treatment Episodes(nominal)	
	<u>Service Engagement (Mother)</u> Domestic Violence Services (nominal) Employment/Vocational Services (nominal) Housing Services (nominal) Mental Health Services (nominal) Parent Training/Education Services (nominal)	

Chart 7

Multivariate Statistical Analysis

Dependent Variables	Independent Variables	Multivariate Analysis
<u>Reunification Status</u> 0=Not reunified 1=Reunified <u>Timeliness of Reunification</u> 1=One year or less 2=13 months or more	Significant Variables from Bivariate Analyses	Multiple Logistic Regression

Chapter 4: Results

The results in this chapter are based on analyses of selected cases from the administrative data set Targeted Grants to Increase the Well-Being of and to Improve the Permanency Outcomes for Children Affected by Methamphetamine or Other Substance Abuse made available from the National Data Archive on Child Abuse and Neglect, Cornell University. The purpose of this study was to identify factors/independent variables that were associated with two child welfare outcomes: (1) reunification with mother, and (2) timeliness of reunification.

This chapter is organized into major sections. Section I contains a description of the children's independent and dependent variables stratified by youngest, oldest, only child sibling groups, and the total sample, respectively. These variables include the socio-demographic characteristics for the child (age, gender, and race/ethnicity) and whether the child was a prior victim of maltreatment. These are followed by a description of the mothers' sample. The independent variables considered for the mothers were age, race/ethnicity, educational status, employment status, primary source of income, type of living arrangement, marital status, whether the parent was a primary caregiver, whether the parent was a prior perpetrator of child maltreatment, and subsequent indicated child maltreatment. Mothers' characteristics were further stratified into two primary groups of variables. The first group was substance use characteristics: methamphetamine as a contributing factor to current child maltreatment disposition, primary substance problem, substance use disorder treatment admission status, time to treatment, time in treatment, level of care, treatment completion status, and the total number of prior treatment episodes. The second group of primary variables includes service engagement

characteristics: domestic violence, employment/vocational, housing, mental health, and parent education training. Finally, a description of the dependent variables is presented.

Sections II through IV include the bivariate and multivariate results by the type of sibling: youngest, oldest, and only child, respectively. The separation of sibling groups is necessary in order to create a one-to-one relationship of mother and child. This addresses the independence of observations that is necessary for statistical analyses. Within each section, the results are organized by the following dependent variables:

1) Reunification status (whether the child was reunified with his/her biological mother or not reunified - adopted, still in foster care, placed with a relative/custody, and guardianship).

2) Timeliness of reunification (whether the child was reunified within one year or less or 13 months to five years) for children who were reunified.

The bivariate analyses (logistic regression) will be presented for the children's and mothers' characteristics, including substance use and service engagement characteristics. After the bivariate results are presented, then the multivariate analysis (multiple logistic regression) will be presented. As previously stated, variables that were significant in the bivariate analyses and had 20% or less missing values were the only variables included in the multiple logistic regression models. The substance use and service engagement characteristics were analyzed separately because of the impact (diminished sample size) that their missing values had on the number of observations in the sample.

Section I: Description of the Sample

This research sample included 6,495 children and 4,623 biological mothers. All of the children in the sample were removed from their primary caregiver/biological parent and placed into a foster care.

Description of the children's sample.

Table 1 shows that the mean age for the children was 57.22 (SD = 54.10) months or 4.77 (SD = 4.51) years. Over 25% (n = 1,575) of the children were less than one year old, 42.1% (n 2,636) were ages 1-5, 25.2% (n = 1,579) were ages 6-12, and 7.4% (n = 464) were ages 13 and older. In regard to gender, 50.6% (n = 3,275) were male and 49.4% (n = 3,200) were female. Over 53% (n = 3,392) of the children were Caucasian, 16.9% (n = 1,066) were African American, 18.9% (n = 1,192) were Hispanic, and 10.3% (n = 651) were in the other race category which included American Indian, Hawaiian Pacific Islander, and Multiracial. Almost 59% (n = 3,496) of the children were not prior child abuse victims.

Table 1 shows that the average age of the youngest child was 49.44 (SD = 48.45) months or 4.12 (SD = 4.04) years, compared to the oldest child where the average age was 79.10 (SD = 55.20) months or 6.59 (SD = 4.60) years and the only child where the average age was 47.32 (SD = 52.53) months or 3.94 (SD = 4.38) years. In regard to age groups for the youngest children, 26.1% (n = 458) of the children were less than one year old compared to 8.1% (n = 148) for the oldest children. The majority of the children were ages 1-5 years old. In regard to gender, 52.0% (n = 969) of the youngest children were females compared to 52.0% (n = 971) of the oldest children and 51.4% (n = 1,409) of the only children were males. In regard to race, the majority of the children were Caucasian

at 51.1% (n = 929) for the youngest child, 52.5% (n = 959) for the oldest child and 56.6% (n = 1,504) of the only children. Among all of the children the majority, 62.1% (n = 1,059) for the youngest child, 55.6% (n = 950) for oldest child, 58.1% (n = 1,487) of the only children were not prior abuse victims.

Table 1

Description of Child's Independent Variables by Type of Sibling

Child Characteristics		YOUNGEST CHILD			OLDEST CHILD			ONLY CHILD			ALL CHILDREN		
		Mean (SD)	N	%*	Mean (SD)	N	%*	Mean (SD)	N	%*	Mean (SD)	N	%*
Age		4.12 (4.0)			6.6 (4.6)			3.9 (4.4)			4.8 (4.5)		
	Less than 1 year		458	26.1		148	8.1		969	36.3		1575	25.2
	1-5 years		840	47.9		806	44.0		990	37.1		2636	42.1
	6-12 years		375	21.4		648	35.4		556	20.8		1579	25.2
	13+ years		81	4.6		229	12.5		154	5.8		464	7.4
Gender	Male		895	48.0		971	52.0		1409	51.4		3275	50.6
	Female		969	52.0		897	48.0		1334	48.6		3200	49.4
Race	Caucasian		929	51.1		959	52.5		1504	56.6		3392	53.8
	African American		325	17.9		322	17.6		419	15.8		1066	16.9
	Hispanic		340	18.7		339	18.6		513	19.3		1192	18.9
	Other		223	12.3		207	11.3		221	8.3		651	10.3
Prior Abuse Victim	No		1059	62.1		950	55.6		1487	58.1		3496	58.5
	Yes		646	37.9		759	44.4		1073	41.9		2478	41.5
Total Number of Children			1872	100		1872	100.0		2751	100.0		6495	100.0

* Not all percentages will equal 100% due to missing values

Description of the mother's sample.

As shown in Table 2, approximately 6.3% (n = 280) of the mothers were less than 21 years old, compared to 49.2% (n = 2,203) who were ages 21-29, 34.9% (n = 1,562) were ages 30-39, and 9.7% (n = 433) were age 40 and older. In regard to race, 60.0% (n = 2,708) of the mothers were Caucasian, 14.9% (n = 672) were African American, 15.9% (n = 720) were Hispanic, and 9.2% (n = 415) were in the Other race category which includes American Indian, Hawaiian Pacific Islander, and Multiracial. Over 63% (n = 2,018) of the mothers were never married compared to 18.1% (n = 575) who were married, and 18.5% (n = 588) were in the other marital status category which includes mothers who were separated, widowed, or divorced.

For all children, Table 2 shows that almost 42% (n = 1,593) of the mothers obtained less than 12 years of education compared to 58.4% (n = 2,240) who obtained more than 12 years of education. Over 18% (n = 728) of the mothers were employed compared to 50.4% (n = 2,006) who were unemployed, and 31.4% (n = 1,250) were not in the labor force. In regard to source of income, 17.2% (n = 504) of the mothers earned wages/salary compared to 28.0% (n = 818) who received public assistance, 16.6% (n = 485) received other income, and 38.2% (n = 1,116) received no income. In regard to the mother's living arrangement, 13.0% (n = 497) were homeless, 21.0% (n = 805) were living dependently, and 66.0% (n = 2,526) were living independently. Over 9% (n = 404) of the mothers were not primary caregivers compared to 90.8% (n = 3,975) who were. Over 44% (n = 1,769) of the mothers were not prior perpetrators and 55.5% (n = 2,208) of the mothers were. In regard to whether or not the mothers were indicated for

subsequent maltreatment, 81.8% (n = 2,928) of the mothers were not indicated and 18.2% (n = 652) were indicated.

Table 2 shows that the mean age of the mothers for the youngest and oldest children was 29.44 (SD = 6.21) years compared to 29.60 (SD = 7.32) years for the only children. The majority of the mothers, 56.9% (n = 1,048) for the youngest and oldest child and 62.1% (n = 1,660) of only children, were Caucasian. Most of the mothers, 58.8% (n = 879) for the youngest and oldest children and 67.6% (n = 1,139) for the only children, were never married. Table 2 shows that most of the mothers, 54.9% (n = 903) for the youngest and oldest children and 61.1% (n = 1,337) for the only children, obtained more than 12 years of education. In regard to employment, 52.0% (n = 877) of the mothers were unemployed for the youngest and oldest children, and 49.1% (n = 1,129) of the mothers for the only children were unemployed.

Table 2 shows that the majority of the mothers, 28.4% (n = 401) for the youngest and 27.6% (n = 417) for the oldest children, had public assistance as their primary source of income. Over 67% of the mothers (n = 1,176) for the youngest and oldest children and 64.9% (n = 1,350) for the only children were living independently. In regard to the mothers being primary caregivers, most of them, 89.1% (n = 1,632) for the youngest and oldest children and 92.0% (n = 2,343) for the only children, were the child's primary caregiver. The majority of the mothers, 57.1% (n = 1,005) for the youngest and oldest children and 54.2% (n = 1,203) for the only children, were prior perpetrators for child maltreatment. In regard to subsequent maltreatment, most of the mothers, 80.3% (n = 1,241) for the youngest and oldest children and 82.9% (n = 1,687) for the only children,

were not indicated for subsequent maltreatment. For all of the children, Table 2 shows

that the mother's mean age is 29.53 (SD = 6.88) years.

Table 2

Description of Mothers' Independent Variables by Type of Sibling

Mother's Characteristics**		YOUNGEST AND OLDEST CHILDREN			ONLY CHILDREN			ALL MOTHERS		
		N	%*	Mean (SD)	N	%*	Mean (SD)	N	%*	Mean (SD)
Age	Less than 21 years	68	3.7		212	8.0		280	6.3	
	21-29 years	966	52.5		1237	46.9		2203	49.2	
	30-39 years	662	36.0		900	34.1		1562	34.9	
	40+ years	143	7.8		290	11.0		433	9.7	
				29.4 (6.2)			29.6 (7.3)			29.5 (6.9)
Race	Caucasian	1048	56.9		1660	62.1		2708	60.0	
	African American	295	16.0		377	14.1		672	14.9	
	Hispanic	291	15.8		429	16.0		720	15.9	
	Other	207	11.2		208	7.8		415	9.2	
Marital Status	Never married	879	58.8		1139	67.6		2018	63.4	
	Now married	331	22.1		244	14.5		575	18.1	
	Other	286	19.1		302	17.9		588	18.5	
Total Number of Mothers		1,872	100.0		2,751	100.0		4,623	100.0	

* Not all percentages will equal 100% due to missing values
**Mothers are identified by the type of child (only, oldest, and youngest)

Table 2 (continued)

Description of Mothers' Independent Variables by Type of Sibling

Mother's Characteristics		YOUNGEST AND OLDEST CHILDREN		ONLY CHILDREN		ALL MOTHERS	
		N	%*	N	%	N	%
Education	Less than 12 years	741	45.1%	852	38.9%	1,593	41.6%
	More than 12 years	903	54.9	1,337	61.1	2,240	58.4
Employment	Employed FT/PT	259	15.4	469	20.4	728	18.3
	Unemployed	877	52.0	1,129	49.1	2,006	50.4
	Not in labor force	549	32.6	701	30.5	1,250	31.4
Source of Income	Wages/salary	241	17.1	263	17.4	504	17.2
	Public Assistance	401	28.4	417	27.6	818	28.0
	Other Income	216	15.3	269	17.8	485	16.6
	No Income	555	39.3	561	37.2	1,116	38.2
Living Arrangement	Homeless	224	12.8	273	13.1	497	13.0
	Dependent living	347	19.9	458	22.0	805	21.0
	Independent living	1,176	67.3	1,350	64.9	2,526	66.0
Primary Caregiver	No	200	10.9	204	8.0	404	9.2%
	Yes	1,632	89.1	2,343	92.0	3,975	90.8
Prior Perpetrator	No	754	42.9	1,015	45.8	1,769	44.5
	Yes	1,005	57.1	1,203	54.2	2,208	55.5
Subsequent Maltreatment	No	1,241	80.3	1,687	82.9	2,928	81.8
	Yes	304	19.7	348	17.1	652	18.2
Total Number of Mothers		1,872	100.0	2,751	100.0	4,623	100.0%

* Not all percentages will equal 100% due to missing values

Substance use characteristics of the mothers.

For all mothers, Table 3 shows that 54.0% (n = 1,955) of the mothers' cases did not report methamphetamine use as the contributing factor for indicated maltreatment, whereas 46.0% (n = 1,664) did report it as the contributing factor for maltreatment. In regard to primary substance problem, 13.2% (n = 447) of the mothers' primary substance problem was alcohol, 11.8% (n = 402) used cocaine/crack, 16.9% (n = 574) used marijuana, 14.0% (n = 476) used heroin/opiates, 32.9% (n = 1,117) used methamphetamine, 2.7% (n = 91) used substances in the Other category which included hallucinogens, benzodiazepines, barbiturates, inhalants, non-prescription methadone, other stimulants, and other sedatives, and 8.4% (n = 286) did not indicate a primary substance problem even though they were admitted to treatment. Over 26% (n = 1,230) of the mothers did not enter SUD treatment, and 73.4% (n = 3,393) entered treatment. In regard to total prior SUD treatment episodes, 26.7% (n = 1,230) of the mothers had no prior episodes, 61.6% (n = 2,841) had one prior episode, and 11.7% (n = 542) had 2-5 prior episodes. Approximately 34.4% (n = 1,067) of the mothers who entered treatment completed it compared to 18.0% (n = 559) who were still in treatment and 47.6% (n = 1,475) who did not complete treatment.

Table 3 shows that most of the mothers, 53.4% (n = 807) for the youngest and oldest children and 54.5% (n = 1,148) for the only children, had methamphetamine use as a contributing factor for the reason for child removal. The majority of the mothers, 31.7% (n = 492) for the youngest and oldest children and 33.9% (n = 625) for the only children, had methamphetamine as the primary substance problem. The majority of the mothers,

82.9% (n = 1,552) for the youngest and oldest children and 66.9% (n = 1,841) for the

only children, entered SUD treatment. In regard to level of care, most of the mothers,

29.4% (n = 322) for the youngest and oldest children and 31.2% (n = 361) for the only

children, entered outpatient treatment. Almost 47.4% (n = 671) of the mothers for the

youngest and oldest children and 47.7% (n = 804) for the only children, did not complete

treatment. In regard to prior treatment episodes, most of the mothers had one prior

treatment episode, 70.2% (n = 1,311) for the youngest and oldest children and 55.7% (n =

1,530) for the only children.

Table 3

Description of Mothers' Substance Use Characteristics by Type of Sibling

		YOUNGEST AND OLDEST CHILDREN		ONLY CHILDREN		ALL MOTHERS	
		N	%*	N	%*	N	%*
Methamphetamine Use	No	807	53.4	1,148	54.5	1,955	54.0
	Yes	704	46.6	960	45.5	1,664	46.0
Primary Substance Problem	Alcohol	194	12.5	253	13.7	447	13.2
	Cocaine/crack	182	11.7	220	12.0	402	11.8
	Marijuana	285	18.4	289	15.7	574	16.9
	Heroin/opiates	230	14.8	246	13.4	476	14.0
	Methamphetamine	492	31.7	625	33.9	1,117	32.9
	Other Primary Substances	52	3.4	39	2.1	91	2.7
	Not Indicated	117	7.5	169	9.2	286	8.4
Treatment Admission	No	320	17.1	910	33.1	1,230	26.6
	Yes	1,552	82.9	1,841	66.9	3,393	73.4
Level of Care	Early Intervention	251	22.9	235	20.3	486	21.6
	Outpatient Treatment	322	29.4	361	31.2	683	30.3
	Intensive Outpatient Treatment	234	21.4	227	19.6	461	20.5
	Residential Treatment	288	26.3	334	28.9	622	27.6
Treatment Completion Status	Yes	475	33.5	592	35.2	1,067	34.4
	Still in Treatment	271	19.1	288	17.1	559	18.0
	No	671	47.4	804	47.7	1,475	47.6
Prior Treatment Episodes	No Treatment Prior Episodes	320	17.1	910	33.1	1,230	26.7
	1 Prior Treatment Episode	1,311	70.2	1,530	55.7	2.841	61.6
	2-5 Prior Treatment Episodes	236	12.6	306	11.1	542	11.7
Total Number of Mothers		1,872	100.0	2,751	100.0	4,623	100.0

* Not all percentages will equal 100% due to missing values

For all mothers, Table 4 shows that the average time for mothers to enter SUD treatment from when the child welfare file opened was 5.33 (SD = 13.34) months. The average time for mothers to spend in treatment was 8.02 (SD = 6.84) months. The average time from when the child welfare file opened to when the mother entered treatment was 4.09 (SD = 6.86) months for the youngest and oldest children and 6.78 (SD = 18.09) months for the only children. The average time spent in treatment was 8.40 (SD = 7.14) months for the youngest and oldest children and 7.38 (SD = 6.27) months for the only children.

Table 4

Description of Mothers' Treatment Characteristics by Type of Sibling

	YOUNGEST AND OLDEST CHILDREN			ONLY CHILDREN			ALL MOTHERS		
	Mean (SD)	N	%*	Mean (SD)	N	%*	Mean (SD.)	N	%*
Time to Treatment (Months)	4.09 (6.86)			6.78 (18.09)			5.33 (13.34)		
Time in Treatment (Months)	8.40 (7.14)			7.38 (6.27)			8.02 (6.84)		
Total Number of Mothers		2,751	100.0		1,872	100.0		4,623	100.0

* Not all percentages will equal 100% due to missing values

Description of the service engagement characteristics of the mothers.

For all of the mothers, Table 5 shows that 57.5% (n = 1,060) did not initiate domestic violence services compared to 42.5% (n = 785) who did initiate these services. Over 48.7% (n = 906) of the mothers did not initiate employment/vocational services compared to 51.3% (n = 953) of the mothers did initiate these services. Approximately 42.7% (n = 866) of the mothers did not initiate housing services compared to 57.3% (n = 1,161) of the mothers who initiated these services. Over 24.3% (n = 425) of the mothers did not initiate mental health services compared to 75.7% (n = 1,327) of the mothers who did initiate these services. Over 23.4% (n = 460) of the mothers did not initiate mental health services compared to 76.6% (n = 1,504) of the mothers who did initiate these services.

Table 5 shows that the majority of the mothers, 55.8% (n = 507) for the youngest and oldest children and 59.1% (n = 553) for the only children, did not initiate domestic violence services. Over 53% (n = 498) of the mothers for the youngest and oldest children initiated employment/vocational services compared to 50.9% (n = 472) of the mothers for the only children who did not initiate these services. Most of the mothers, 74.9% (n = 655) for the youngest and oldest children and 76.6% (n = 672) of the only children, initiated mental health services. The majority of the mothers, 75.6% (n = 745) for the youngest and oldest children and 77.5% (n = 759) for the only children, initiated parent education and training services.

Table 5

Description of Mothers' Service Engagement Characteristics by Type of Sibling

Mother's Service Initiated**		YOUNGEST AND OLDEST CHILDREN		ONLY CHILDREN		ALL MOTHERS	
		N	%*	N	%*	N	%*
Domestic Violence	No	507	55.8	553	59.1	1,060	57.5
	Yes	402	44.2	383	40.9	785	42.5
Employment/Vocational	No	434	46.6	472	50.9	906	48.7
	Yes	498	53.4	455	49.1	953	51.3
Housing	No	435	42.1	431	43.4	866	42.7
	Yes	598	57.9	563	56.6	1,161	57.3
Mental Health	No	220	25.1	205	23.4	425	24.3
	Yes	655	74.9	672	76.6	1,327	75.7
Parent Education/Training	No	240	24.4	220	22.5	460	23.4
	Yes	745	75.6	759	77.5	1,504	76.6
Total Number of Mothers		1,872	100.0	2,751	100.0	4,623	100.0

* Not all percentages will equal 100% due to missing values

Description of the dependent variables.

For the total sample, Table 6 shows that 56.8% (n = 3,692) of the children were not reunified with their biological mother compared to 43.2% (n = 2,803) of the children who were reunified with their mother. The average time for reunification was 334.06 (SD = 309.86) days or 11.14 (SD = 10.33) months. Approximately 64.2% (n = 1,860) of children were reunified with their mother in one year or less compared to 35.8% (n = 1,037) of children were reunified in 13 months or more.

Table 7 shows that 43.9% (n = 822) of the youngest children were reunified with their mothers. Over 42% (n = 803) of oldest children and almost 43% (n = 1,178) of only children were reunified with their mothers. Over 67% (n = 522) of the youngest children were reunified within one year or less. The average time for reunification for the youngest child was 10.43 (SD = 9.28) months from when the child was removed. Almost 65% (n = 538) of the children were reunified within one year or less. The average time for reunification for the oldest child was 328.38 (SD = 278.52) days from when the child was removed. Almost 62% (n = 745) of the children were reunified within one year or less from when the child was removed.

Table 6

Description of the Dependent Variables for All of the Children

Dependent Variables		N	%	Mean (SD)
Reunification Status	Not Reunified	3692	56.8	
	Reunified	2803	43.2	
Timeliness of Reunification	One Year or Less	1860	64.2	
	13+ months	1037	35.8	
Timeliness of Reunification (months)				11.14 (10.33)
Total Number of Cases		6495	100.0	

Table 7

Description of the Dependent Variables by Type of Sibling

Dependent Variables		YOUNGEST CHILDREN			OLDEST CHILDREN			ONLY CHILDREN		
		N	%	Mean (SD)	N	%	Mean (SD)	N	%	Mean (SD)
Reunification Status	Not Reunified	1050	56.1		1069	57.1		1573	57.2	
	Reunified	822	43.9		803	42.9		1178	42.8	
Timeliness of Reunification	One Year or Less	577	67.3		538	64.6		745	61.7	
	13+ months	280	32.7		295	35.4		462	38.3	
Timeliness of Reunification (Months)				10.43 (9.28)			10.95 (10.30)			11.76 (11.00)

Section II: Bivariate and Multivariate Analysis for Option 1 - Reunification Status and Option 2 - Timelines of Reunification: Youngest Child

Option 1.

Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/reunification status.

Table 8 shows that African American children were significantly less likely than Caucasian children to be reunified with their mothers (OR = .553; 95% CI [.424, .722]). In regard to child prior abuse, there was a significant association with reunification status. Children who were not victims of prior abuse were 1.274 times (95% CI [1.045, 1.554]) as likely as children who were victims to be reunified with their mothers.

As shown in Table 8, the results of the multiple logistic regression (adjusted) show that a child's race remained significantly associated with reunification (OR = .546; 95% CI [.410, .727]). The significant bivariate association of prior abuse victim and reunification was attenuated (p = .097).

Table 8

Estimates of the Relationship Between Child's Characteristics/Independent Variables

and Reunification Status: Youngest Child

	Unadjusted			Adjusted		
Independent Variables	OR	95% CI	p	OR	95% CI	p
Child						
Age (13+*)						
Less than 1 year old	.828	.515; 1.332	.436			
1 – 5 years old	1.071	.678; 1.692	.770			
6 – 12 years old	.904	.558; 1.465	.683			
Child Gender (Male*)						
Female	1.108	.922; 1.330	.274			
Child Race (White*)						
Black	.553	.424; .722	<.001	.546	.410; .727	<.001
Hispanic	1.033	.805; 1.325	.800	1.036	.791; 1.358	.797
Other	1.230	.918; 1.647	.166	1.258	.933; 1.696	.132
Prior Abuse Victim						
(Yes*)						
No	1.274	1.045; 1.554	.017	1.188	.969; 1.456	.097

*Indicates Reference Category

Null Hypothesis 2: There is not a significant association between mothers'

characteristics and child welfare outcomes/reunification status.

Table 9 shows that there were significant bivariate associations between mothers'

race, marital status, living arrangement, and reunification status. African American

mothers were significantly less likely than Caucasian mothers to be reunified with their

child (OR = .553; 95% CI [.420, .728]). Mothers who identified as Multiracial, Native

American, or Pacific Islander were 1.378 times (95% CI [1.022, 1.858]) as likely as

Caucasian mothers to be reunified with their child. Mothers who were married were

1.545 times (95% CI [1.124, 2.124]) as likely as mothers who were in the other category

to be reunified with their child. Educational status had a significant association with reunification status. Mothers who had more than 12 years of education were 1.223 times (95% CI [1.006, 1.487]) as likely as mothers who obtained less than 12 years of education to be reunified with their children. Mothers who were homeless were significantly less likely than mothers who lived independently to be reunified with their children (OR = .648; 95% CI [.482, .871]).

As shown in Table 10, the results of the multiple logistic regression (adjusted) show that mothers' race, marital status, and living arrangement remained significantly associated with reunification. African American mothers were significantly less likely than Caucasian mothers to be reunified with their child (OR = .611; 95% CI [.482, .871]). Mothers who indicated their race in the other category were 1.431 times (95% CI [1.021, 2.005]) as likely as Caucasian mothers to be reunified with their child. Mothers who were married were 1.694 times (95% CI [1.207, 2.377]) as likely as mothers whose marital status was other. Homeless mothers were significantly less likely than mothers who lived independently to be reunified with their child (OR = .633; 95% CI [.448, .894]). The impact of education was attenuated (p = .063), marginally associated with reunification.

Table 9

Estimates of the Relationship Between Mothers' Characteristics/Independent Variables

and Reunification Status: Youngest Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	.619	.341; 1.123	.114			
21 – 29 years old	.865	.608; 1.231	.421			
30 – 39 years old	.963	.670; 1.384	.839			
Race (White*)						
Black	.553	.420; .728	<.001	.611	.438; .851	.004
Hispanic	1.181	.911; 1.532	.210	1.343	.952; 1.895	.093
Other	1.378	1.022; 1.858	.035	1.431	1.021; 2.005	.037
Marital Status (Other*)						
Never married	.836	.639; 1.095	.193	.960	.718; 1.283	.783
Now married	1.545	1.124; 2.124	.007	1.694	1.207; 2.377	.002
Education (Less than 12*)						
12 or more years	1.223	1.006, 1.487	.044	1.234	.989; 1.540	.063
Employment (Not in LF*)						
Employed	.933	.694; 1.254	.645			
Unemployed	.810	.654; 1.003	.053			
Income (No income*)						
Wages/salary	1.245	.919; 1.687	.157			
Public assistance	1.082	.835; 1.402	.551			
Other income	1.135	.828; 1.557	.431			
Living Arrangement (Independent*)						
Homeless	.648	.482; .871	.004	.633	.448; .894	.009
Dependent living	.919	.723; 1.170	.494	.889	.659; 1.119	.442
Primary Caregiver (No*)						
Yes	.943	.702; 1.267	.698			
Prior Perpetrator (Yes*)						
No	1.040	.861; 1.258	.683			
Subsequent Maltreatment (Yes*)						
No	.927	.728; 1.182	.542			

*Indicates Reference Category

Null Hypothesis 3: There is not a significant association between the mothers'
substance use characteristics and child welfare outcomes/reunification status.

The findings presented in Table 10 suggested that there were significant bivariate
associations between reunification status and methamphetamine use, primary substance
problem, and time to SUD treatment, respectively. Mothers who had no
methamphetamine use were significantly less likely than mothers who used
methamphetamine to be reunified with their child (OR = .614; 95% CI [.501, .753]).
Mothers whose primary substance was heroin/opiates were significantly less likely than
those whose primary substance was alcohol to be reunified with their child (OR = .526;
95% CI [.354, .781). Mothers whose primary substance was not indicated were
significantly less likely than those whose primary substance was alcohol to be reunified
with their child (OR = .576; 95% CI [.358, .926]). For each day that lapsed between when
the mother's child welfare file opened to when she entered treatment, the likelihood of
being reunified increased by .991.

Findings suggested that there were significant associations between reunification
status and SUD treatment admission, level of care, and time in treatment, respectively.
Mothers who entered treatment were 1.312 times (95% CI [1.026, 1.679]) as likely as
mothers who did not enter treatment to be reunified with their child. Mothers who entered
early intervention treatment were 1.720 times (95% CI [1.222, 2.420]) as likely as
mothers who entered residential treatment to be reunified with their child. For each day
that lapsed between when the mother entered to when she completed treatment the
likelihood of being reunified increased by 1.056. Mothers who completed treatment were

3.829 times (95% CI [2.985, 4.912]) as likely as mothers who did not complete treatment to be reunified with their child.

As shown in Table 10, the findings of the multiple logistic regression (adjusted) suggested that significant associations remained between reunification status and time to treatment, level of care, time in SUD treatment, and treatment completion status, respectively. Mothers who entered early intervention treatment were 2.911 times (95% CI [1.694, 5.003]) as likely as mothers who entered residential treatment to be reunified with their child. For each month between when the mothers' child welfare file opened to when they entered treatment the likelihood of being reunified decreased by .980. For each month between when the mothers entered to when they completed treatment the likelihood of being reunified increased by 1.037. Mothers who completed treatment were 3.901 times (95% CI [2.661, 5.718]) as likely as mothers who did not complete treatment to be reunified with their child. The significant bivariate associations between reunification status and methamphetamine use, heroin/opiates, and primary problem not indicated, respectively, were attenuated ($p > .15$).

Table 10

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Reunification Status: Youngest Child

Independent Variables	Unadjusted			Adjusted (n=626)**		
	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	.614	.501, .753	<.001	.721	.459; 1.133	.151
Primary Substance Problem (Alcohol*)						
Cocaine/Crack	.813	.541; 1.222	.319	.812	.428; 1.543	.525
Marijuana	.904	.627; 1.303	.588	.598	.324; 1.101	.099
Heroin/Opiates	.526	.354; .781	.001	.649	.355; 1.187	.161
Methamphetamine	1.253	.898; 1.747	.185	.949	.505; 1.784	.871
Other	1.197	.649; 2.210	.564	1.009	.329; 3.097	.987
Not Indicated	.576	.358; .926	.023	.428	.104; 1.763	.240
Time to Treatment	.991	.983; .998	.018	.980	.960; 1.000	.047
Treatment Admission (No*)						
Yes	1.312	1.026; 1.679	.031			
Level of Care (Residential*)						
Early Intervention	1.720	1.222; 2.420	.002	2.911	1.694; 5.003	<.001
Outpatient	.840	.608; 1.121	.292	.886	.554; 1.419	.616
Intensive Outpatient	.917	.646; 1.301	.627	1.150	.708; 1.870	.572
Time in Treatment	1.056	1.038; 1.074	<.001	1.037	1.009; 1.067	.011
Treatment Completion (No*)						
Yes	3.829	2.985, 4.912	<.001	3.901	2.661; 5.718	<.001
Still in Tx	1.031	.768; 1.383	.841			
Prior Treatment Episodes (2-5*)						
No prior episodes	.727	.517; 1.023	<.001			
1 prior episode	.953	.722; 1.259	.841			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mothers'

service engagement characteristics and child welfare outcomes/reunification status.

Findings suggested that there were significant associations between reunification

status and employment/vocational services and housing services, respectively (see Table

11). Mothers who initiated employment/vocational services were 1.471 times (95% CI [1.127, 1.920]) as likely as mothers who did not initiate these services to be reunified with their child. Mothers who initiated housing services were 1.457 times (95% CI [1.129, 1.879]) as likely as mothers who did not initiate these services to be reunified with their child.

As shown in Table 11, the findings of the multiple logistic regression (adjusted) suggested that significant associations remained between housing services and reunification. Mothers who initiated housing services were 1.737 times (95% CI [1.291 2.338]) as likely as mothers who did not initiate these services to be reunified with their child.

Table 11

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/

Independent Variables and Reunification Status: Youngest Child

Independent Variables	Unadjusted			Adjusted (n = 320)**		
	OR	95% CI	p	OR	95% CI	p
Domestic Violence (No*)						
Yes	.965	.738; 1.262	.797			
Employment/Vocational (No*)						
Yes	1.471	1.127, 1.920	.005	1.259	.951; 1.666	.108
Housing (No*)						
Yes	1.457	1.129, 1.879	.004	1.737	1.291; 2.338	<.001
Mental Health (No*)						
Yes	1.210	.844; 1.655	.234			
Parent Training/Education (No*)						
Yes	1.182	.879; 1.591	.269			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Summary of bivariate and multivariate analyses.

As shown in Table 12, the following independent variables were significant predictors of reunification: child race and whether or not they were a prior abuse victim; mother's race, marital status, education, and living arrangement; methamphetamine use, primary substance problem, time to SUD treatment, treatment admission status, level of care, time in treatment, treatment completion status, and number of prior treatment episodes; employment/vocational and housing services initiated. As shown in Table 13, after controlling for the significant variables in each model, the following variables remained significant: child race, mother's race, marital status, and living arrangement, time to treatment, level of care, time in treatment, treatment completion status, and housing services.

Table 12

Summary of Bivariate Analysis for Reunification Status (Option 1): Youngest Child

<u>Socio-Demographic Characteristics (Child)</u>	
Age	
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	X
<u>Socio-Demographic Characteristics (Mother)</u>	
Age	
Race/Ethnicity	X
Marital Status	X
Education	X
Employment	
Source of Income	
Living Arrangement	X
Primary Caregiver	
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	
<u>Substance Use Characteristics (Mother)</u>	
Methamphetamine Use as Contributing Factor	X
Primary Substance Problem	X
Time to Treatment	X
Treatment Admission Status	X
Level of Care	X
Time in Treatment	X
Treatment Status	X
Prior Treatment Episodes	X
<u>Service Engagement Characteristics (Mother)</u>	
Domestic Violence Services	
Employment/Vocational Services	X
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \leq .05$

Table 13

Summary of Multivariate Analysis for Reunification Status (Option 1): Youngest Child

Socio-Demographic Characteristics (Child)	
Age	
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	X
Education	
Employment	
Source of Income	
Living Arrangement	X
Primary Caregiver	
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	X
Treatment Admission Status	
Level of Care	X
Time in Treatment	X
Treatment Status	X
Prior Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	
Employment/Vocational Services	
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at p ≤ .05

Option 2: Timeliness of reunification.

Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/timeliness of reunification.

The child's race and whether or not the child was a victim of prior abuse were significantly associated with timeliness of reunification. Table 14 shows that both African American (OR = .350; 95% CI [.220, .556]) and Hispanic (OR = .283; 95% CI [.190, .420]) children were significantly less likely than Caucasian children to be reunified with their mothers within one year or less. Children who were not victims of prior abuse were 1.859 times (95% CI [1.333, 2.593]) as likely as children who were victims of prior abuse to be reunified with their mothers within one year or less.

As shown in Table 14, the results of the multiple logistic regression (adjusted) show that significant associations remained between timeliness of reunification and child race and prior abuse victim, respectively. Compared to Caucasian children, African American and Hispanic children were significantly less likely to be reunified with their mothers within one year or less. This relationship was also observed for children of other races. Children who were not victims of prior abuse were significantly more likely than children who were prior victims to be reunified with their mothers within one year or less (OR = 1.756; 95% CI [1.239, 2.490]).

Table 14

Estimates of the Relationship Between Children's Characteristics/Independent Variables

and Timeliness of Reunification: Youngest Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (13+*)						
Less than 1 year old	1.619	.785; 3.339	.192			
1 – 5 years old	1.439	.725; 2.856	.298			
6 – 12 years old	1.615	.777; 3.359	.199			
Gender (Male*)						
Female	1.154	.855; 1.557	.349			
Race (White*)						
Black	.350	.220; .556	<.001	.309	.186; .514	<.001
Hispanic	.283	.190; .420	<.001	.353	.228; .547	<.001
Other	.656	.412; 1.044	.075	.605	.373; .981	.042
Prior Abuse Victim						
(Yes*)						
No	1.859	1.333; 2.593	<.001	1.756	1.239; 2.490	.002

*Indicates Reference Category

Null Hypothesis 2: There is not a significant association between mothers'

characteristics and child welfare outcomes/timeliness of reunification.

Table 15 shows that there were significant bivariate associations between

timeliness of reunification and mothers' race, education, living arrangement, source of

income, whether or not they were a primary caregiver, and whether or not they were prior

perpetrators, respectively. Both African American (OR = .327; 95% CI [.202, .530]) and

Hispanic (OR = .307; 95% CI [.205, .458]) mothers were significantly less likely than

Caucasian mothers to be reunified with their children within one year or less. Mothers

who had more than 12 years of education were 1.405 times (95% CI [1.026, 1.924]) as

likely as mothers who had less than 12 years of education to be reunified with their child

within one year or less. Mothers who had other income (disability or pension) were 2.231 times (95% CI [1.256, 3.965]) as likely as mothers who had no income to be reunified with their child within one year or less. Mothers who were homeless were significantly less likely than mothers who lived independently to be reunified with their children within one year or less (OR = .510; 95% CI [.307, .845]). Mothers who lived dependently were .467 times (95% CI [.320, .682]) as likely as mothers who lived independently to be reunified with their child within one year or less. Mothers who were primary caregivers were 2.071 times (95% CI [1.331; 3.222]) as likely as mothers who were not primary caregivers to be reunified with their children within one year or less. Mothers who were not prior perpetrators were 2.074 times (95% CI [1.502, 2.864]) as likely as mothers who were to be reunified with their children within one year or less.

As shown in Table 15, the results of the multiple logistic regression (adjusted) show that mother's race, living arrangement, source of income, whether or not they were a primary caregiver, and whether or not they were prior perpetrators remained significantly associated with timeliness of reunification. Compared to Caucasian mothers, African American, Hispanic, and mothers in the other race category were significantly less likely to be reunified with their children within one year or less. Homeless mothers were .567 times (95% CI [.327; .983]) as likely as mothers who lived independently to be reunified with their children within one year or less. Mothers who lived dependently were .611 times (95% CI [.400, .934]) as likely as mothers who lived independently to be reunified with their children within one year or less. Mothers who were primary caregivers were 2.610 times (95% CI [1.544, 4.410]) as likely as mothers who were not primary caregivers to be reunified with their children within one year or less. Mothers

who were not prior perpetrators were 1.633 times (95% CI [1.140, 2.339]) as likely as

mothers who were perpetrators to be reunified with their children within one year or less.

Table 15

Estimates of the Relationship Between Mothers' Characteristics/Independent Variables

and Timeliness of Reunification: Youngest Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	1.338	.486; 3.685	.573			
21 – 29 years old	1.686	.979; 2.901	.059			
30 – 39 years old	1.737	.994; 3.035	.053			
Race (White*)						
Black	.327	.202; .530	<.001	.354	.204; .617	<.001
Hispanic	.307	.205; .458	<.001	.323	.206; .508	<.001
Other	.632	.398; 1.005	.053	.594	.363; .974	.039
Marital Status (Other*)						
Never married	.971	.617; 1.526	.898			
Now married	.961	.580; 1.591	.877			
Education (Less than 12*)						
12 or more years	1.405	1.026; 1.924	.034	1.299	.917; 1.840	.140
Employment (Not in LF*)						
Employed	1.102	.676; 1.796	.698			
Unemployed	.761	.539; 1.073	.119			
Income (No income*)						
Wages/salary	1.654	.985; 2.775	.057			
Public assistance	1.226	.800; 1.881	.350			
Other income	2.231	1.256; 3.965	.006			
Living Arrangement (Independent*)						
Homeless	.510	.307; .845	.009	.567	.327; .983	.043
Dependent living	.467	.320; .682	<.001	.611	.400; .934	.023
Primary Caregiver (No*)						
Yes	2.071	1.331; 3.222	.001	2.610	1.544; 4.410	<.001
Prior Perpetrator (Yes*)						
No	2.074	1.502; 2.864	<.001	1.633	1.140; 2.339	.007
Subsequent Maltreatment (Yes*)						
No	.907	.599; 1.374	.644			

*Indicates reference category

Null Hypothesis 3: There is not a significant association between the mothers'
substance use characteristics and child welfare outcomes/timeliness of reunification.

Table 16 presents findings that suggested significant bivariate associations
between timeliness of reunification and time to SUD treatment and treatment completion,
respectively. For each day that lapsed between when the mothers' child welfare file
opened to when they entered treatment, the likelihood of being reunified within one year
decreased by .964. Mothers who were still in treatment were 2.033 times (95% CI [1.172,
3.528]) as likely as mothers who did not complete treatment to be reunified with their
children within one year or less.

As shown in Table 16, the results of the multiple logistic regression (adjusted)
suggested significant associations remained between time to treatment, treatment
completion, and timeliness of reunification. For each day that lapsed between when the
mothers' child welfare file opened to when they entered treatment the likelihood of being
reunified within one year decreased by .963. Mothers who were still in treatment were
2.134 times (95% CI [1.135, 4.014]) as likely as mothers who did not complete treatment
to be reunified with their children within one year or less.

Table 16

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Timeliness of Reunification: Youngest Child

	Unadjusted			Adjusted (n=475)**		
Independent Variables	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	1.150	.829; 1.596	.403			
Primary Substance Problem (Alcohol*)						
Cocaine/Crack	.910	.472; 1.758	.780			
Marijuana	1.653	.903; 3.026	.103			
Heroin/Opiates	.877	.456; 1.686	.693			
Methamphetamine	.910	.547; 1.513	.716			
Other	2.959	.931; 9.405	.066			
Not Indicated	.966	.437; 2.135	.932			
Time to Treatment	.964	.942; .986	.001	.963	.939; .986	.002
Treatment Admission (No*)						
Yes	.773	.499; 1.195	.246			
Level of Care (Residential*)						
Early Intervention	1.621	.923; 2.847	.093			
Outpatient	.761	.439; 1.319	.331			
Intensive Outpatient	1.725	.908; 3.279	.096			
Time in Treatment	.981	.958; 1.004	.109			
Treatment Completion (No*)						
Yes	1.172	.818; 1.678	.387	1.315	.858; 2.015	.209
Still in Tx	2.033	1.172; 3.528	.012	2.134	1.135; 4.014	.019
Prior Treatment Episodes (2-5*)						
No prior episodes	1.061	.581; 1.935	.848			
1 prior episode	.794	.493; 1.279	.343			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mothers'
service engagement characteristics and child welfare outcomes/timeliness of
reunification.

Table 17 shows there was significant associations between reunification status
and domestic violence services and housing services. Mothers who initiated domestic
violence services were 2.332 times (95% CI [1.466, 3.711]) as likely as mothers who did
not initiate these services to be reunified with their children within one year or less.
Mothers who initiated housing services were significantly less likely to be reunified with
their child within one year or less than mothers who did not initiate these services (OR =
.539; 95% CI [.342, .849]). The results of the multiple logistic regression (adjusted)
suggested significant associations remained between domestic violence services and
timeliness of reunification. Mothers who initiated domestic violence services were 2.363
times (95% CI [1.479, 3.776]) as likely as mothers who did not initiate these services to
be reunified with their children within one year or less.

Table 17

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/

Independent Variables and Timeliness of Reunification: Youngest Child

Independent Variables	Unadjusted			Adjusted (n=324)**		
	OR	95% CI	p	OR	95% CI	p
Domestic Violence (No*)						
Yes	2.332	1.466; 3.711	<.001	2.363	1.479; 3.776	<.001
Employment/Vocational (No*)						
Yes	1.028	.655; 1.614	.904			
Housing (No*)						
Yes	.539	.342; .849	.008	.605	.359; 1.022	.060
Mental Health (No*)						
Yes	1.026	.612; 1.721	.922			
Parent Training/Education (No*)						
Yes	.948	.574; 1.566	.835			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Summary of bivariate and multivariate analyses.

As shown in Table 18, the following independent variables were significant predictors of reunification within one year or less: child race and whether or not the child was a victim of prior abuse; mother's race, education, source of income, living arrangement, whether or not they were primary caregivers, prior perpetrators, primary substance problem, time to treatment, treatment completion, domestic violence, and housing services. As shown in Table 19, after controlling for the significant variables in each model, the following variables remained significant: child race, mother's race, living arrangement, whether or not they were primary caregivers, prior perpetrators, time to treatment, treatment completion status, and domestic violence services.

Table 18

Summary of Bivariate Analysis for Timeliness of Reunification (Option 2): Youngest

Child

Socio-Demographic Characteristics (Child)	
Age	
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	X
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	
Education	X
Employment	
Source of Income	X
Living Arrangement	X
Primary Caregiver	X
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	X
Treatment Admission Status	
Level of Care	
Time in Treatment	
Treatment Status	X
Prior Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	X
Employment/Vocational Services	
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at p ≤ .05

Table 19

Summary of Multivariate Analysis for Timeliness of Reunification (Option 2): Youngest

Child

Socio-Demographic Characteristics (Child)	
Age	
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	
Education	
Employment	
Source of Income	
Living Arrangement	X
Primary Caregiver	X
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	X
Treatment Admission Status	
Level of Care	
Time in Treatment	
Treatment Status	X
Prior Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	X
Employment/Vocational Services	
Housing Services	
Mental Health Services	
Parent Training/Education Services	

**X significant at $p \leq .05$

Section III: Bivariate and Multivariate Analysis for Option 1 - Reunification Status and Option 2 - Timeliness of Reunification: Oldest Child

Option 1: Reunification status.

Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/reunification status.

As shown in Table 20, African American children were significantly less likely than Caucasian children to be reunified with their mothers (OR = .526; 95% CI [.402, .689]).

Table 20

Estimates of the Relationship Between Child's Characteristics/Independent Variables and Reunification Status: Oldest Child

	Unadjusted			Adjusted		
Independent Variables	OR	95% CI	p	OR	95% CI	p
Age (13+*)						
Less than 1 year old	.921	.606; 1.400	.699		N/A**	
1 – 5 years old	.968	.720; 1.302	.829			
6 – 12 years old	1.064	.785; 1.441	.690			
Gender (Male*)						
Female	1.081	.900; 1.298	.406			
Race (White*)						
Black	.526	.402; .689	<.001			
Hispanic	.968	.755; 1.242	.799			
Other	1.208	.894; 1.632	.218			
Prior Abuse Victim						
(Yes*)						
No	1.087	.897; 1.318	.396			

*Indicates Reference Category
**Since race/ethnicity was the only significant variable for the child's characteristics, the multiple logistic model was not completed.

Null Hypothesis 2: There is not a significant association between mothers'
characteristics and child welfare outcomes/reunification status.

Table 21 shows that there were significant bivariate associations between
reunification status and mothers' race, marital status, education, employment, living
arrangement, and whether or not they were prior perpetrators. African American mothers
were significantly less likely than Caucasian mothers to be reunified with their children
(OR = .487; 95% CI [.368, .645]). Mothers who were married were 1.542 times (95% CI
[1.121, 2.120]) as likely as mothers whose marital status was other to be reunified with
their child. Mothers who had obtained more than 12 years of education were 1.239 times
(95% CI [1.019, 1.507]) more likely than mothers who had obtained less than 12 years of
education to be reunified with their children. Unemployed mothers were significantly less
likely than mothers who lived independently to be reunified with their children (OR =
.806; 95% CI [.650, .999]). Mothers who were homeless were significantly less likely
than mothers who lived independently to be reunified with their children (OR = .609;
95% CI [.451, .822]). Mothers who were not indicated for subsequent maltreatment were
1.069 times (95% CI [884, 1.293]) as likely as mothers who were indicated for
subsequent maltreatment to be reunified with their children.

As shown in Table 21, the results of the multiple logistic regression (adjusted)
show that mothers' race, marital status, and living arrangement remained significantly
associated with reunification. Compared to Caucasian mothers, African American
mothers were less likely to be reunified (OR = .653; 95% CI [.451, .945]). Mothers who
indicated their race in the other category were 1.53 times (95% CI [1.074, 2.184]) as
likely as Caucasian mothers to be reunified with their child. Mothers who were married

were 1.886 times (95% CI [1.305, 2.726]) as likely as mothers with other marital status to be reunified with their children. Homeless mothers were significantly less likely than mothers who lived independently to be reunified with their children (OR = .651, 95% CI [.447, .949]).

Table 21

Estimates of the Relationship Between Mothers' Characteristics/Independent Variables

and Reunification Status: Oldest Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	.641	.355; 1.159	.141			
21 – 29 years old	.810	.569; 1.152	.241			
30 – 39 years old	.876	.610; 1.258	.473			
Race (White*)						
Black	.487	.368; .645	<.001	.653	.451; .945	.024
Hispanic	1.092	.841; 1.416	.510	1.266	.870; 1.843	.217
Other	1.281	.950; 1.726	.104	1.531	1.074; 2.184	.019
Marital Status (Other*)						
Never married	.919	.702; 1.204	.541	1.218	.886; 1.674	.225
Now married	1.542	1.121; 2.120	.008	1.886	1.305; 2.726	.001
Education (Less than 12*)						
12 or more years	1.239	1.019; 1.507	.032	1.268	.995; 1.616	.055
Employment (Not in LF*)						
Employed	.982	.730; 1.320	.903	.998	.696; 1.433	.993
Unemployed	.806	.650; .999	.049	.819	.625; 1.074	.149
Income (No income*)						
Wages/salary	1.336	.986; 1.810	.062			
Public assistance	1.123	.866; 1.455	.382			
Other income	1.200	.875; 1.647	.258			
Living Arrangement (Independent*)						
Homeless	.609	.451; .822	.001	.651	.447; .949	.026
Dependent living	.841	.660; 1.072	.162	.978	.709; 1.349	.892
Primary Caregiver (No*)						
Yes	.897	.668; 1.205	.472			
Prior Perpetrator (Yes*)						
No	1.069	.884; 1.293	.492			
Subsequent Maltreatment (Yes*)						
No	.778	.605; 1.000	.050	.784	.574; 1.072	.127

*Indicates Reference Category

Null Hypothesis 3: There is not a significant association between the mothers'
substance use characteristics and child welfare outcomes/reunification status.

Table 22 presents findings that suggested significant bivariate associations
between reunification status and methamphetamine use, primary substance problem,
treatment admission, level of care, time in treatment, treatment completion, and prior
treatment episodes, respectively. Mothers who had no methamphetamine use indicated as
a contributing factor to the current maltreatment were significantly less likely than
mothers who used methamphetamine to be reunified with their children (OR = .703; 95%
CI [.573, .862]). Mothers whose primary substance was heroin/opiates were significantly
less likely than mothers whose primary substance was alcohol to be reunified with their
children (OR = .505; 95% CI [.340, .749]). Mothers whose primary substance was not
indicated were significantly less likely than mothers whose primary substance was
alcohol to be reunified with their children (OR = .574; 95% CI [.358, .921]).

Mothers who entered treatment were 1.443 times (95% CI [1.124, 1.852]) as
likely as mothers who did not enter treatment to be reunified with their children. Mothers
who entered early intervention SUD treatment were 1.720 times (95% CI [1.222, 2.420])
as likely as mothers who entered residential treatment to be reunified with their children.
For each day that lapsed between when the mother entered to when she completed
treatment the likelihood of being reunified increased by 1.057. Mothers who completed
treatment were 3.666 times (95% CI [2.836, 6.241]) more likely than mothers who had
not completed to be reunified with their children. Mothers who had one prior treatment
episode were significantly less likely than mothers who had 2-5 prior treatment episodes
to be reunified with their children (OR = .702; 95% CI [.498, .991]).

As shown in Table 22, the results of the multiple logistic regression (adjusted) suggested that significant associations remained between reunification status and level of care, time in treatment, and treatment completion status, respectively. Mothers who entered early intervention SUD treatment were 2.839 times (95% CI [1.690, 4.767]) as likely as mothers who entered residential treatment to be reunified with their children. For each month between when the mother entered to when she completed treatment the likelihood of being reunified increased by 1.040. Mothers who completed treatment were 3.899 times (95% CI [2.774, 5.481]) as likely as mothers who had not completed to be reunified with their children.

Table 22

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Reunification Status: Oldest Child

Independent Variables	Unadjusted			Adjusted (n=745)**		
	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	.703	.573; .862	.001	.785	.518; 1.189	.253
Primary Substance Problem (Alcohol*)						
Cocaine/Crack	.680	.452; 1.025	.066	.615	.343; 1.104	.104
Marijuana	.918	.637; 1.323	.645	.691	.397; 1.202	.191
Heroin/Opiates	.505	.340; .749	.001	.704	.406; 1.222	.213
Methamphetamine	1.099	.788; 1.532	.578	.917	.513; 1.639	.770
Other	1.149	.623; 2.120	.657	1.047	.406; 2.701	.924
Not Indicated	.574	.358; .921	.021	.472	.116; 1.919	.294
Time to Treatment	.994	.987; 1.001	.084			
Treatment Admission (No*)						
Yes	1.443	1.124; 1.852	.004			
Level of Care (Residential*)						
Early Intervention	1.831	1.300; 2.579	.001	2.839	1.690; 4.767	<.001
Outpatient	.909	.658; 1.256	.565	.843	.556; 1.277	.420
Intensive Outpatient	.882	.620; 1.253	.482	.862	.552; 1.347	.515
Time in Treatment	1.057	1.039; 1.075	<.001	1.040	1.016; 1.066	.001
Treatment Completion (No*)						
Yes	3.666	2.862; 4.697	<.001	3.899	2.774; 5.481	<.001
Still in Treatment	1.099	.820; 1.474	.527			
Prior Treatment Episodes (2-5*)						
No prior episodes	.702	.498; .991	.044			
1 prior episode	1.020	.771; 1.348	.892			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mothers'

service engagement characteristics and child welfare outcomes/reunification status.

Table 23 presents findings that suggested significant bivariate associations

between reunification status and employment/vocational services and housing services,

respectively. Mothers who initiated employment/vocational services were 1.484 times (95% CI [1.135, 1.939]) as likely as mothers who did not initiate these services to be reunified with their child. Mothers who initiated housing services were 1.339 times (95% CI [1.038, 1.726]) as likely as mothers who did not initiate these services to be reunified with their child. The results of the multiple logistic regression (adjusted) suggested that significant associations remained between reunification and housing services. Mothers who initiated housing services were 1.691 times (95% CI [1.254, 2.279]) as likely as mothers who did not initiate these services to be reunified with their child.

Table 23

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/

Independent Variables and Reunification Status: Oldest Child

Independent Variables	Unadjusted			Adjusted (n=924)**		
	OR	95% CI	p	OR	95% CI	p
Domestic Violence (No*)						
Yes	.947	.723; 1.239	.690			
Employment/Vocational (No*)						
Yes	1.484	1.135; 1.939	.004	1.293	.976; 1.713	.074
Housing (No*)						
Yes	1.339	1.038; 1.726	.025	1.691	1.254; 2.279	.001
Mental Health (No*)						
Yes	1.203	.878; 1.649	.249			
Parent Training/Education (No*)						
Yes	1.240	.920; 1.671	.158			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Summary of bivariate and multivariate analyses.

As shown in Table 24, the following independent variables were significant predictors of reunification: child's race; mother's race, marital status, education, employment, living arrangement, whether or not they were indicated for subsequent maltreatment, methamphetamine use, primary substance problem, time to treatment, treatment admission status, level of care, time in treatment, treatment completion status, number of prior treatment episodes, and employment/vocational and housing services initiated. As shown in Table 25, after controlling for the significant variables in each model, the following variables remained significant: mother's race, marital status, living arrangement, level of care, time in treatment, treatment completion status, and housing services.

Table 24

Summary of Bivariate Analysis for Reunification Status (Option 1): Oldest Child

Socio-Demographic Characteristics (Child)	
Age	
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	X
Education	X
Employment	X
Source of Income	
Living Arrangement	X
Primary Caregiver	
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	X
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	X
Primary Substance Problem	X
Time to Treatment	
Treatment Admission Status	X
Level of Care	X
Time in Treatment	X
Treatment Status	X
Prior Treatment Episodes	X
Service Engagement Characteristics (Mother)	
Domestic Violence Services	
Employment/Vocational Services	X
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \leq .05$

Table 25

Summary of Multivariate Analysis for Reunification Status (Option 1): Oldest Child

<u>Socio-Demographic Characteristics (Mother)</u>	
Age	
Race/Ethnicity	X
Marital Status	X
Education	
Employment	
Source of Income	
Living Arrangement	X
Primary Caregiver	
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	
<u>Substance Use Characteristics (Mother)</u>	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	
Treatment Admission Status	
Level of Care	X
Time in Treatment	X
Treatment Status	X
Prior Treatment Episodes	
<u>Service Engagement Characteristics (Mother)</u>	
Domestic Violence Services	
Employment/Vocational Services	
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \leq .05$

Option 2: Timeliness of reunification.

Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/timeliness of reunification.

As shown in Table 26, there were significant bivariate associations between child's age, race, whether the child was a victim of prior abuse, and timeliness of reunification. Children who were less than one year old were 3.157 times (95% CI [1.483, 6.718]) as likely as children who were 13 years and older to be reunified within one year or less. Both African American (OR = .289; 95% CI [.181, .461]) and Hispanic (OR = .347; 95% CI [.233, .518]) children were significantly less likely than Caucasian children to be reunified with their mothers within one year or less. Children who were not victims of prior abuse were 1.439 times (95% CI [1.046, 1.979]) as likely as children who were victims of prior abuse to be reunified with their mothers within one year or less.

As shown in Table 26, the results of the multiple logistic regression (adjusted) show that significant associations remained between timeliness of reunification and child age, race, and prior abuse victim, respectively. Compared to children age 13 and older, children who were less than a year old were 3.351 times (95% CI [1.447, 7.761]) as likely to be reunified within one year or less. Both African American (OR = .282; 95% CI [.170, .469]) and Hispanic (OR = .395; 95% CI [.253, .616]) children were significantly less likely to be reunified within one year or less.

Table 26

Estimates of the Relationship Between Child's Characteristics/Independent Variables

and Timeliness of Reunification: Oldest Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (13+*)						
Less than 1 year old	3.157	1.483; 6.718	.003	3.351	1.447; 7.761	.005
1 – 5 years old	1.512	.945; 2.419	.084	1.587	.953; 2.641	.076
6 – 12 years old	1.359	.844; 2.188	.206	1.497	.901; 2.486	.119
Gender (Male*)						
Female	1.035	.768; 1.394	.821			
Race (White*)						
Black	.289	.181; .461	<.001	.282	.170; .469	<.001
Hispanic	.347	.233; .518	<.001	.395	.253; .616	<.001
Other	.902	.555; 1.468	.679	.842	.510; 1.391	.503
Prior Abuse Victim (Yes*)						
No	1.439	1.046; 1.979	.025	1.202	.850; 1.699	.299

*Indicates Reference Category

Null Hypothesis 2: There is not a significant association between mothers'

characteristics and child welfare outcomes/timeliness of reunification.

Table 27 shows there were significant bivariate associations between timeliness of

reunification and mothers' age, race, source of income, living arrangement, whether or

not they were a primary caregiver, and whether or not they were prior perpetrators,

respectively. Mothers who were ages 21-29 were 2.088 times (95% CI [1.220, 3.575]) as

likely as mothers who were age 40 and older to be reunified within one year or less.

Mothers who were ages 30-39 were 2.549 times (95% CI [1.460, 4.451]) as likely as

mothers who were age 40 and older to be reunified within one year or less. Compared to

Caucasian mothers, both African American (OR = .313; 95% CI [.191, .514]) and

Hispanic (OR = .347; 95% CI [.230, .525]) mothers were significantly less likely to be reunified with their children within one year or less. Mothers who had other income (disability or pension) were 2.925 times (95% CI [1.615, 5.296]) as likely as mothers who had no income to be reunified with their child within one year or less. Mothers who lived dependently were .448 times (95% CI [.304, .659]) as likely as mothers who lived independently to be reunified with their child within one year or less. Mothers who were primary caregivers were significantly more likely than mothers who were not primary caregivers to be reunified with their children within one year or less (OR = 2.026, 95% CI [1.302, 3.152]). Mothers who were not prior perpetrators were 1.951 times (95% CI [1.421, 2.679]) more likely than mothers who were to be reunified with their child within one year or less.

As shown in Table 27, the results of the multiple logistic regression (adjusted) show that significant associations remained between timeliness of reunification and mother's age, race, living arrangement, source of income, whether or not they were a primary caregiver, and whether or not they were prior perpetrators, respectively. Mothers who were ages 21-29 were 2.335 times (95% CI [1.300, 4.193]) as likely as mothers who were age 40 and older to be reunified within one year or less. Mothers who were ages 30-39 were 3.089 times (95% CI [1.685, 5.665]) as likely as mothers who were age 40 and older to be reunified within one year or less. Both African American (OR = .365, 95% CI [.207, .644]) and Hispanic (OR = .333, 95% CI [.211, .526]) mothers were significantly less likely than Caucasian mothers to be reunified with their children within one year or less. Compared to mothers who lived independently, mothers who lived dependently were .560 times (95% CI [.364, .861]) as likely to be reunified with their children within

one year or less. Mothers who were primary caregivers were 2.377 times (95% CI [1.406, 4.019]) more likely than mothers who were not primary caregivers to be reunified with their child within one year or less. Mothers who were not prior perpetrators were significantly more likely than mothers who were to be reunified with their children within one year or less (OR = 1.733, 95% CI [1.219, 2.463]).

Table 27

Estimates of the Relationship Between Mothers' Characteristics/Independent Variables

and Timeliness of Reunification: Oldest Child

	Unadjusted			Adjusted		
Independent Variables	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	1.066	.396; 2.867	.899	1.241	.407; 3.787	.705
21 – 29 years old	2.088	1.220; 3.575	.007	2.335	1.300; 4.193	.005
30 – 39 years old	2.549	1.460; 4.451	.001	3.089	1.685; 5.665	<.001
Race (White*)						
Black	.313	.191; .514	<.001	.365	.207; .644	<.001
Hispanic	.347	.230; .525	<.001	.333	.211; .526	<.001
Other	.682	.431; 1.081	.104	.682	.419; 1.109	.123
Marital Status (Other*)						
Never married	.898	.571; 1.413	.641			
Now married	.949	.572; 1.573	.838			
Education (Less than 12*)						
12 or more years	1.269	.928; 1.736	.136			
Employment (Not in LF*)						
Employed	1.010	.626; 1.630	.967			
Unemployed	.733	.519; 1.034	.077			
Income (No income*)						
Wages/salary	1.486	.907; 2.435	.116			
Public assistance	1.356	.890; 2.066	.157			
Other income	2.925	1.615; 5.296	<.001			
Living Arrangement (Independent*)						
Homeless	.633	.379; 1.056	.080	.653	.379; 1.126	.126
Dependent living	.448	.304; .659	<.001	.560	.364; .861	.008
Primary Caregiver (No*)						
Yes	2.026	1.302; 3.152	.002	2.377	1.406; 4.019	.001
Prior Perpetrator (Yes*)						
No	1.951	1.421; 2.679	<.001	1.733	1.219; 2.463	.002
Subsequent Maltreatment (Yes*)						
No	1.006	.666; 1.519	.978			

*Indicates Reference Category

Null Hypothesis 3: There is not a significant association between the mothers' substance use characteristics and child welfare outcomes/timeliness of reunification.

Table 28 presents findings that suggested significant bivariate associations between timeliness of reunification and primary substance problem and time to SUD treatment and treatment completion, respectively. Mothers whose primary substance was marijuana were 1.783 times (95% CI [1.000, 3.178]) as likely as mothers whose primary substance was alcohol to be reunified within one year or less. Mothers whose primary substance was other were 5.537 times (95% CI [1.540, 19.908]) as likely as mothers whose primary substance was alcohol to be reunified within one year or less. For each month between when the mother's child welfare file opened to when she entered SUD treatment the likelihood of being reunified decreased by .963.

As shown in Table 28, the results of the multiple logistic regression (adjusted) suggested significant associations remained between timeliness of reunification and primary substance problem and time to SUD treatment, respectively. Mothers whose primary substance was marijuana were 2.059 times (95% CI [1.066, 3.977]) as likely as mothers whose primary substance was alcohol to be reunified within one year or less. Mothers whose primary substance was other were 11.975 times (95% CI [1.604, 89.383]) as likely as mothers whose primary substance was alcohol to be reunified within one year or less. For each month between when the mother's child welfare file opened to when she entered treatment the likelihood of being reunified decreased by .955.

Table 28

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Timeliness of Reunification: Oldest Child

Independent Variables	Unadjusted			Adjusted (n=476)**		
	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	1.080	.781; 1.494	.640			
Primary Substance Problem (Alcohol*)						
Cocaine/Crack	1.046	.540; 2.025	.895	1.424	.637; 3.181	.389
Marijuana	1.783	1.000; 3.178	.050	2.059	1.066; 3.977	.032
Heroin/Opiates	1.278	.670; 2.438	.457	1.568	.740; 3.320	.240
Methamphetamine	1.065	.647; 1.752	.805	1.497	.837; 2.677	.174
Other	5.537	1.540; 19.908	.009	11.975	1.604; 89.383	.015
Not Indicated	1.208	.557; 2.619	.632	1.210	.382; 3.831	.745
Time to Treatment	.963	.942; .984	.001	.955	.930; .980	.001
Treatment Admission (No*)						
Yes	.688	.436; 1.083	.106			
Level of Care (Residential*)						
Early Intervention	1.686	.974; 2.918	.062			
Outpatient	.681	.399; 1.162	.159			
Intensive Outpatient	1.465	.791; 2.715	.225			
Time in Treatment	.979	.957; 1.002	.077			
Treatment Completion (No*)						
Yes	1.206	.842; 1.729	.307	1.425	.923; 2.201	.110
Still in Treatment	1.716	1.027; 2.865	.039	1.795	.984; 3.273	.057
Prior Treatment Episodes (2-5*)						
No prior episodes	1.741	.955; 3.174	.070			
1 prior episode	1.229	.778; 1.941	.376			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mothers'

service engagement characteristics and child welfare outcomes/timeliness of

reunification.

Table 29 presents findings that suggested there were significant bivariate

associations between timeliness of reunification status and domestic violence services

and housing services, respectively. Mothers who initiated domestic violence services were 2.635 times (95% CI [1.656, 4.194]) as likely as mothers who did not initiate these services to be reunified with their children within one year or less. Mothers who initiated housing services were .525 times (95% CI [.336, .822]) as likely as mothers who did not initiate these services to be reunified with their children within one year or less. The results of the multiple logistic regression (adjusted) suggested significant associations remained between timeliness of reunification and domestic violence services. Mothers who initiated domestic violence services were 1.686 times (95% CI [1.680, 4.296]) as likely as mothers who did not initiate these services to be reunified with their children within one year or less.

Table 29

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/

Independent Variables and Timeliness of Reunification: Oldest Child

	Unadjusted			Adjusted (n=320)**		
Independent Variables	OR	95% CI	p	OR	95% CI	p
Domestic Violence (No*)						
Yes	2.635	1.656; 4.194	<.001	1.686	1.680; 4.296	<.001
Employment/Vocational (No*)						
Yes	.924	.589; 1.454	.733			
Housing (No*)						
Yes	.525	.336; .822	.005	.598	.356; 1.004	.052
Mental Health (No*)						
Yes	.777	.458; 1.316	.348			
Parent Training/Education (No*)						
Yes	.974	.589; 1.612	.918			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Summary of bivariate and multivariate analyses.

As shown in Table 30, the following independent variables were significant

predictors of reunification: child age, race, whether or not the child was a victim of prior

abuse; mother's age, race, source of income, living arrangement, and whether or not they

were primary caregivers and prior perpetrators; primary substance problem, time to SUD

treatment, treatment completion status; domestic violence and housing services initiated.

As shown in Table 31, after controlling for the significant variables in each model, the

following variables remained significant: child's age, race, mother's age, race, living

arrangement, primary substance problem, time to treatment, and domestic violence

services.

Table 30

Summary of Bivariate Analysis for Timeliness of Reunification (Option 2): Oldest Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	X
Socio-Demographic Characteristics (Mother)	
Age	X
Race/Ethnicity	X
Marital Status	
Education	
Employment	
Source of Income	X
Living Arrangement	X
Primary Caregiver	X
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	X
Time to Treatment	X
Treatment Admission Status	
Level of Care	
Time in Treatment	
Treatment Status	X
Prior Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	X
Employment/Vocational Services	
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \leq .05$

Table 31

Summary of Multivariate Analysis for Timeliness of Reunification (Option 2): Oldest

Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	
Socio-Demographic Characteristics (Mother)	
Age	X
Race/Ethnicity	X
Marital Status	
Education	
Employment	
Source of Income	
Living Arrangement	X
Primary Caregiver	X
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	X
Time to Treatment	X
Treatment Admission Status	
Level of Care	
Time in Treatment	
Treatment Status	
Number of Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	X
Employment/Vocational Services	
Housing Services	
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \leq .05$

Section IV: Bivariate and Multivariate Analysis for Option 1 - Reunification Status

and Option 2 - Timeliness of reunification: Only Child

 Option 1: Reunification status.

 Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/reunification status.

 Table 32 shows that there were significant bivariate associations between reunification status and child age, race, and whether or not the child was a victim of prior abuse, respectively. Children less than one year old were significantly less likely than children who were 13 years and older to be reunified with their mothers (OR = .448. 95% CI [.318, .631]). Compared to Caucasian children, African American children were significantly less likely to be reunified with their mothers (OR = .723, 95% CI [.578, .905]). Children who were not victims of prior abuse were .809 times (95% CI [.690, .947]) as likely as children who were victims to be reunified with their mothers.

 Table 32 shows that the results of the multiple logistic regression (adjusted) which indicates that age and race remained significantly associated with reunification. Children who were less than one year old were .711 times (95% CI [.291, .599) as likely as children 13 years and older to be reunified with their mothers. African American children were significantly less likely than Caucasian children to be reunified with their mothers (OR = .780, 95% CI [.611, .995]). Hispanic children were 1.251 times (95% CI [1.006, 1.555]) as likely as Caucasian children to be reunified with their mothers.

Table 32

Estimates of the Relationship Between the Child's Characteristics/Independent Variables

and Reunification Status: Only Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (13+*)						
Less than 1 year old	.448	.318; .631	<.001	.418	.291; .599	<.001
1 – 5 years old	.761	.541; 1.069	.115	.711	.502; 1.008	.056
6 – 12 years old	.825	.577; 1.180	.293	.846	.586; 1.220	.370
Gender (Male*)						
Female	1.006	.865; 1.171	.934			
Race (White*)						
Black	.723	.578; .905	.005	.780	.611; .995	.045
Hispanic	1.189	.972; 1.453	.092	1.251	1.006; 1.555	.044
Other	.917	.689; 1.222	.555	.968	.719; 1.303	.829
Prior Abuse Victim (Yes*)						
No	.809	.690; .947	.009	1.031	.857; 1.240	.748

*Indicates Reference Category

Null Hypothesis 2: There is not a significant association between mother's

characteristics and child welfare outcomes/reunification status.

Table 33 shows that there were significant bivariate associations between

reunification status and age, race, education, employment, source of income, living

arrangement, primary caregiver, and subsequent maltreatment, respectively. Compared to

mothers who were age 40 and older, mothers who were younger than age 21 (OR = .359,

95% CI [.248, .521]), ages 21-29 (OR = .553, 95% CI [.427, .716]), and ages 30-39 (OR

=.683, 95% CI [.523, .891]) were significantly less likely to be reunified with their

children. African American mothers were .724 times (95% CI [.574, .914]) as likely as

Caucasian mothers to be reunified with their children. Hispanic mothers were 1.301 times

(95% CI [1.052, 1.610]) as likely as Caucasian mothers to be reunified with their children.

Mothers who had more than 12 years of education were 1.318 times (95% CI [1.106, 1.570]) as likely as mothers who had less than 12 years of education to be reunified with their child. Mothers who were employed were significantly more likely than mothers who were not in the labor force to be reunified with their children (OR = 1.465; 95% CI [1.158, 1.854). Compared to mothers with no income, mothers whose primary source of income was wages/salary were 1.550 times (95% CI [1.154, 2.082]) as likely to be reunified with their children. Mothers whose primary source of income was other income, which includes disability and pension, were .675 times (95% CI [.495, .920]) as likely as mothers who had no income to be reunified with their children. Mothers who lived dependently were 1.310 times (95% CI [1.058, 1.622]) as likely as mothers who lived independently to be reunified with their children. Mothers who were primary caregivers were 1.510 times (95% CI [1.118; 2.038]) as likely as mothers who were not to be reunified with their children. Mothers who were not indicated for subsequent maltreatment were significantly less likely than mothers who were to be reunified with their children (OR= .544, 95% CI [.431, .687]).

Table 33 shows the results of the multiple logistic regression (adjusted) which show that age and employment remained significantly associated with reunification. Compared to mothers who were age 40 and older, mothers who were younger than age 21 (OR = .386, 95% CI [.251, .593]), ages 21-29 (OR = .590, 95% CI [.437, .797]), and ages 30-39 (OR = .653; 95% CI [.480, .889]) were significantly less likely to be reunified with

their children. Mothers who were employed were 1.313 times (95% CI [1.018, 1.693]) as

likely as mothers who were not in the labor force to be reunified with their children.

Table 33

Estimates of the Relationship Between Mothers' Characteristics/Independent Variables

and Reunification Status: Only Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	.359	.248; .521	<.001	.386	.251; .593	<.001
21 – 29 years old	.553	.427; .716	<.001	.590	.437; .797	.001
30 – 39 years old	.683	.523; .891	.005	.653	.480; .889	.007
Race (White*)						
Black	.724	.574; .914	.007	.774	.581; 1.031	.080
Hispanic	1.301	1.052; 1.610	.015	1.172	.915; 1.501	.209
Other	1.026	.767; 1.372	.865	1.186	.863; 1.630	.293
Marital Status (Other*)						
Never married	.857	.662; 1.109	.240			
Now married	1.055	.750; 1.484	.758			
Education (Less than 12*)						
12 or more years	1.318	1.106; 1.570	.002	1.172	.973; 1.412	.095
Employment (Not in LF*)						
Employed	1.465	1.158; 1.854	.001	1.313	1.018; 1.693	.036
Unemployed	.912	.753; 1.106	.350	.914	.747; 1.117	.378
Income (No income*)						
Wages/salary	1.550	1.154; 2.082	.004			
Public assistance	.892	.687; 1.158	.390			
Other income	.675	.495; .920	.013			
Living Arrangement (Independent*)						
Homeless	.853	.650; 1.118	.249			
Dependent living	1.310	1.058; 1.622	.013			
Primary Caregiver (No*)						
Yes	1.510	1.118; 2.038	.007			
Prior Perpetrator (Yes*)						
No	.894	.756; 1.058	.192			
Subsequent Maltreatment (Yes*)						
No	.544	.431; .687	<.001			

*Indicates Reference Category

Null Hypothesis 3: There is not a significant association between the mother's substance use characteristics and child welfare outcomes/reunification status.

Table 34 presents findings that suggested significant bivariate associations between reunification status and methamphetamine use, primary substance problem, time to SUD treatment, level of care, time in treatment, treatment completion, and prior treatment episodes, respectively. Mothers who had no methamphetamine use indicated were .634 times (95% CI [.532, .755]) as likely as mothers who used methamphetamine to be reunified with their children. Compared to mothers whose primary substance was alcohol, mothers whose primary substance problem was cocaine/crack (OR = .358, 95% CI [.243, .527]), heroin/opiates (OR = .404, 95% CI [.279, .584]), and primary substance not indicated (OR = .365; 95% CI [.240, .555]) were significantly less likely to be reunified with their children. For each month between when the mothers' child welfare file opened to when they entered substance use treatment, the likelihood of being reunified decreased by .967.

Mothers who entered early intervention SUD treatment were 1.413 times (95% CI [1.009, 1.978]) as likely as mothers who entered residential treatment to be reunified with their children. For each month between when the mother entered to when she completed substance use treatment the likelihood of being reunified increased by 1.003. Mothers who completed substance use treatment were significantly more likely than mothers who did not complete treatment to be reunified with their children (OR = 4.096, 95% CI [3.269, 5.131]). Compared to mothers who had 2-5 prior treatment episodes, mothers who had no prior treatment episode (OR = 1.523, 95% CI [1.165, 1.992]) and one prior

treatment episode (OR = 1.380, 95% CI [1.069, 1.781]) were significantly more likely to be reunified with their children.

As shown in Table 34, the results of the multiple logistic regression (adjusted) suggested significant associations remained between reunification status and primary substance problem, level of care, time in treatment, and treatment completion status, respectively. Compared to mothers whose primary substance problem was alcohol, mothers whose primary substance was cocaine/crack (OR = .432, 95% CI [.229, .815]), marijuana (OR = .520, 95% CI [.291, .929], and heroin/opiates (OR = .294, 95% CI [.159, .544]) were significantly less likely to be reunified with their children. Mothers who entered early intervention were 2.020 times (95% CI [1.219, 3.349]) as likely as mothers who entered residential treatment to be reunified with their children. For each month between when the mother entered to when she completed treatment the likelihood of being reunified increased by 1.055. Mothers who completed treatment were 3.956 times (95% CI [2.720, 5.724]) more likely than mothers who had not completed to be reunified with their children.

Table 34

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Reunification Status: Only Child

Independent Variables	Unadjusted			Adjusted (n=691)**		
	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	.634	.532; .755	<.001	.978	.645; 1.484	.917
Primary Substance Problem (Alcohol*)						
Cocaine/Crack	.358	.243; .527	<.001	.432	.229; .815	.010
Marijuana	.713	.508; 1.002	.051	.520	.291; .929	.027
Heroin/Opiates	.404	.279; .584	<.001	.294	.159; .544	<.001
Methamphetamine	1.044	.780; 1.399	.770	1.041	.597; 1.815	.889
Other	.610	.306; 1.218	.161	.510	.158; 1.638	.258
Not Indicated	.365	.240; .555	<.001	.269	.058; 1.249	.094
Time to Treatment	.967	.948; .987	.001	.971	.941; 1.003	.077
Treatment Admission (No*)						
Yes	.856	.729; 1.004	.056			
Level of Care (Residential*)						
Early Intervention	1.413	1.009; 1.978	.044	2.020	1.219; 3.349	.006
Outpatient	.800	.588; 1.088	.155	.853	.546; 1.331	.482
Intensive Outpatient	.951	.674; 1.342	.774	1.091	.662; 1.799	.732
Time in Treatment	1.089	1.069; 1.110	<.001	1.055	1.023; 1.089	.001
Treatment Completion (No*)						
Yes	4.096	3.269; 5.131	<.001	3.956	2.720; 5.724	<.001
Still in Tx	1.065	.797; 1.422	.671			
Prior Treatment Episodes (2-5*)						
No prior episodes	1.523	1.165; 1.992	.002			
1 prior episode	1.380	1.069; 1.781	.013			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mother's

service engagement characteristics and child welfare outcomes/reunification status.

Table 35 presents findings that suggested significant bivariate associations

between reunification status, employment/vocational services, and parent training/

education services, respectively. Mothers who initiated employment/vocational services were 1.726 times (95% CI [1.313, 2.269]) as likely as mothers who did not initiate these services to be reunified with their children. Mothers who initiated parent training/ education services were 1.469 times (95% CI [1.066, 2.025]) as likely as mothers who did not initiate these services to be reunified with their children. The results of the multiple logistic regression (adjusted) suggested that the significant associations remained between reunification status, employment/vocational, and parent training/ education services. Mothers who initiated employment/vocational services were 1.405 times (95% CI [1.048, 1.882]) as likely as mothers who did not initiate these services to be reunified with their children. Mothers who initiated parent training/education services were 1.696 times (95% CI [1.147, 2.507]) as likely as mothers who did not initiate these services to be reunified with their children.

Table 35

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/

Independent Variables and Reunification Status: Only Child

Independent Variables	Unadjusted			Adjusted (n=869)**		
	OR	95% CI	p	OR	95% CI	p
Domestic Violence (No*)						
Yes	.974	.740; 1.282	.850			
Employment/Vocational (No*)						
Yes	1.726	1.313; 2.269	<.001	1.405	1.048; 1.882	.023
Housing (No*)						
Yes	1.067	.823; 1.385	.624			
Mental Health (No*)						
Yes	1.240	.889; 1.728	.205			
Parent Training/Education (No*)						
Yes	1.469	1.066; 2.025	.019	1.696	1.147; 2.507	.008

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Summary of bivariate and multivariate analyses.

As shown in Table 36, the following independent variables were significant predictors of reunification: child age, race, whether or not they were victims of prior abuse; mother's age, race/ethnicity, education, employment, source of income, living arrangement, and whether or not they were primary caregivers and subsequent maltreatment, methamphetamine use, primary substance problem, time to treatment, level of care, time in treatment, treatment completion status, number of prior SUD treatment episodes, employment/vocational and parenting training/education services. As shown in Table 37, after controlling for the significant variables in each model, the following variables remained significant: child's age and race/ethnicity; mother's age and

employment; time to treatment and treatment completion; employment/vocational and

parent training/education services.

Table 36

Summary of Bivariate Analysis for Reunification Status (Option 1): Only Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	X
Socio-Demographic Characteristics (Mother)	
Age	X
Race/Ethnicity	X
Marital Status	
Education	X
Employment	X
Source of Income	X
Living Arrangement	X
Primary Caregiver	X
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	X
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	X
Primary Substance Problem	X
Time to Treatment	X
Treatment Admission Status	
Level of Care	X
Time in Treatment	X
Treatment Status	X
Number of Treatment Episodes	X
Service Engagement Characteristics (Mother)	
Domestic Violence Services	
Employment/Vocational Services	X
Housing Services	
Mental Health Services	
Parent Training/Education Services	X

*X significant at $p \leq .05$

Table 37

Summary of Multivariate Analysis for Reunification Status (Option 1): Only Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	X
Child Prior Abuse Victim	
Socio-Demographic Characteristics (Mother)	
Age	X
Race/Ethnicity	
Marital Status	
Education	
Employment	X
Source of Income	
Living Arrangement	
Primary Caregiver	
Prior Maltreatment Perpetrator	
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	X
Time to Treatment	
Treatment Admission Status	
Level of Care	X
Time in Treatment	X
Treatment Status	X
Number of Treatment Episodes	
Service Engagement Characteristics (Mother)	
Domestic Violence Services	
Employment/Vocational Services	X
Housing Services	
Mental Health Services	
Parent Training/Education Services	X

*X significant at p ≤ .05

Option 2: Timeliness of reunification.

Null Hypothesis 1: There is not a significant association between child's characteristics and child welfare outcomes/timeliness of reunification.

Table 38 shows that there were significant bivariate associations between timeliness of reunification and child age and whether or not the child was a victim of prior abuse, respectively. Children who were under the age of one were 2.510 times (95% CI [1.486, 4.240]) as likely as children ages 13 and older to be reunified within one year or less. Children who were not a victim of prior abuse were significantly more likely than children who were victims to be reunified within one year or less (OR = 3.281, 95% CI [2.518, 4.276]).

As shown in Table 38, the results for the multiple logistic regression (adjusted) show that significant associations remained between timeliness of reunification and child age and whether or not the child was a victim of prior abuse, respectively. Children under the age of one were 2.092 times (95% CI [1.198, 3.654]) as likely as children ages 13 and older to be reunified within one year or less. Children who were not a victim of prior abuse were 2.592 times (95% CI [1.936, 3.470]) as likely as children who were victims of prior abuse to be reunified within one year or less.

Table 38

Estimates of the Relationship Between Child's Characteristics/Independent Variables

and Timeliness of Reunification: Only Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (13+*)						
Less than 1 year old	2.510	1.486; 4.240	.001	2.092	1.198; 3.654	.009
1 – 5 years old	1.385	.845; 2.271	.196	1.485	.889; 2.480	.131
6 – 12 years old	.635	.378; 1.065	.085	.788	.461; 1.346	.383
Gender (Male*)						
Female	1.028	.806; 1.311	.826			
Race (White*)						
Black	.830	.572; 1.205	.328			
Hispanic	.997	.729; 1.364	.987			
Other	1.156	.713; 1.876	.556			
Prior Abuse Victim (Yes*)						
No	3.281	2.518; 4.276	<.001	2.592	1.936; 3.470	<.001

*Indicates Reference Category

Null Hypothesis 2: There is not a significant association between mother's

characteristics and child welfare outcomes/timeliness of reunification.

As shown in Table 39, there were significant bivariate associations between

timeliness of reunification and race, source of income, living arrangement, and whether

or not the mother is a prior perpetrator, respectively. Hispanic mothers were significantly

less likely than Caucasian mothers to be reunified with their children within one year or

less (OR = .717; 95% CI [.519, .990]). Mothers who had wages/salary as their primary

source of income were 2.576 times (95% CI [1.483, 4.473]) as likely as mothers who had

no income to be reunified within one year or less. Mothers who had other income as their

primary source of income were 1.955 times (95% CI [1.048, 3.649]) as likely as mothers

who had no income to be reunified within one year or less. Mothers who were homeless

(OR = .402, 95% CI [.252, .640]) and lived dependently (OR = .561, 95% CI [.391,

.805]) were both significantly less likely than mothers who lived independently to be

reunified within one year or less. Mothers who were not prior perpetrators of child

maltreatment were 3.268 times (95% CI [2.433, 4.391]) as likely as mothers who were to

be reunified within one year or less. The results for the multiple logistic regression

(adjusted) show that significant associations remained between timeliness of reunification

and race/ethnicity and whether or not the mother was a prior perpetrator. Hispanic

mothers were significantly less likely than Caucasian mothers to be reunified with their

children within one year or less (OR = .641; 95% CI [.447, .920]). Mothers who were not

prior perpetrators of child maltreatment were 3.221 times (95% CI [2.384, 4.351]) as

likely as mothers who were to be reunified within one year or less.

Table 39

Estimates of the Relationship Between Mother's Characteristics/Independent Variables

and Timeliness of Reunification: Only Child

Independent Variables	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Age (40+ years old*)						
Less than 21 years old	1.047	.573; 1.915	.881			
21 – 29 years old	1.324	.911; 1.923	.141			
30 – 39 years old	1.088	.742; 1.596	.664			
Race (White*)						
Black	.761	.517; 1.119	.165	.930	.586; 1.474	.756
Hispanic	.717	.519; .990	.043	.641	.447; .920	.016
Other	1.057	.653; 1.710	.822	.923	.538; 1.584	.772
Marital Status (Other*)						
Never married	.747	.463; 1.206	.233			
Now married	1.667	.839; 3.311	.145			
Education (Less than 12*)						
12 or more years	.894	.666; 1.200	.456			
Employment (Not in LF*)						
Employed	.855	.588; 1.242	.411			
Unemployed	.836	.603; 1.160	.284			
Income (No income*)						
Wages/salary	2.576	1.483; 4.473	.001**			
Public assistance	1.268	.796; 2.019	.318			
Other income	1.955	1.048; 3.649	.035			
Living Arrangement (Independent*)						
Homeless	.402	.252; .640	<.001**			
Dependent living	.561	.391; .805	.002			
Primary Caregiver (No*)						
Yes	1.016	.616; 1.676	.950			
Prior Perpetrator (Yes*)						
No	3.268	2.433; 4.391	<.001	3.221	2.384; 4.351	<.001
Subsequent Maltreatment (Yes*)						
No	1.174	.803; 1.716	.408			

*Indicates Reference Category

Null Hypothesis 3: There is not a significant association between the mother's substance use characteristics and child welfare outcomes/timeliness of reunification.

As shown in Table 40, there were significant bivariate associations between timeliness of reunification and time to treatment, treatment admission, level of care, treatment completion, and prior treatment episodes, respectively. For each month between when the mother's child welfare file opened to when she entered substance use treatment the likelihood of being reunified decreased by .894. Mothers who entered treatment were 2.342 times (95% CI [1.817, 3.017]) as likely as mothers who had not to be reunified within one year or less. Mothers who entered outpatient treatment were .511 times (95% CI [.283, .923]) as likely as mothers who entered residential treatment to be reunified within one year or less. Mothers who completed treatment were 1.513 times (95% CI [1.063, 2.155]) as likely as mothers who did not complete to be reunified within one year or less. Mothers who were still in treatment were 1.919 times (95% CI [1.094, 3.368]) as likely as mothers who did not complete to be reunified within one year or less. Mothers who had no prior treatment episodes were .459 times (95% CI [.278, .758]) as likely as mothers who between two to five prior treatment episodes to be reunified within one year or less.

As shown in Table 40, the results of the multiple logistic regression (adjusted) show that significant associations remained between timeliness of reunification and time to treatment and level of care, respectively. For each month between when the mother's child welfare file opened to when she entered treatment the likelihood of being reunified decreased by .898. Compared to mothers who entered residential treatment, mothers who entered both early intervention (OR = .428, 95% CI [.211, .867]) and outpatient treatment

(OR = .433, 95% CI [.213, .877]) were significantly less likely to be reunified within one

year or less.

Table 40

Estimates of the Relationship Between Mothers' Substance Use Characteristics/

Independent Variables and Timeliness of Reunification: Only Child

Independent Variables	Unadjusted			Adjusted (n=347)**		
	OR	95% CI	p	OR	95% CI	p
Methamphetamine Use (Yes*)						
No	.820	.618; 1.089	.171			
Primary Substance Problem						
(Alcohol*)						
Cocaine/Crack	.934	.468; 1.864	.847			
Marijuana	.909	.520; 1.588	.738			
Heroin/Opiates	1.162	.591; 2.283	.664			
Methamphetamine	.928	.581; 1.481	.754			
Other	1.136	.333; 3.874	.838			
Not Indicated	1.281	.578; 2.838	.542			
Time to Treatment	.894	.858; .931	<.001	.898	.854; .944	<.001
Treatment Admission (No*)						
Yes	2.342	1.817; 3.017	<.001			
Level of Care (Residential*)						
Early Intervention	.657	.359; 1.202	.173	.428	.211; .867	.019
Outpatient	.511	.283; .923	.026	.433	.213; .877	.020
Intensive Outpatient	.828	.420; 1.631	.585	.630	.294; 1.348	.234
Time in Treatment	.997	.970; 1.025	.833			
Treatment Completion (No*)						
Yes	1.513	1.063; 2.155	.022	1.321	.775; 2.250	.306
Still in Treatment	1.919	1.094; 3.368	.023	1.736	.768; 3.923	.185
Prior Treatment Episodes (2-5*)						
No prior episodes	.459	.278; .758	.002			
1 prior episode	1.085	.663; 1.775	.745			

*Indicates reference category
**Sample sizes do not add to the total number of children in the sibling group

Null Hypothesis 4: There is not a significant association between the mother's service engagement characteristics and child welfare outcomes/timeliness of reunification.

As shown in Table 41, housing services were a significant predictor for timeliness of reunification. Mothers who initiated housing services were .472 times (95% CI [.287, .777]) as likely as mothers who did not to be reunified within one year or less. The multivariate analysis was not completed since there was only one significant variable from the bivariate analyses.

Table 41

Estimates of the Relationship Between Mothers' Service Engagement Characteristics/ Independent Variables and Timeliness of Reunification: Only Child

	Unadjusted		
Independent Variables	OR	95% CI	p
Domestic Violence (No*)			
Yes	1.511	.905; 2.522	.114
Employment/Vocational (No*)			
Yes	.919	.556; 1.516	.740
Housing (No*)			
Yes	.472	.287; .777	.003
Mental Health (No*)			
Yes	.768	.416; 1.419	.399
Parent Education/Training (No*)			
Yes	.639	.339; 1.205	.167

*Indicates reference category

Summary of bivariate and multivariate analyses.

As shown in Table 42, the following independent variables were significant predictors of timeliness of reunification: child age and whether or not the child was a victim of prior abuse; mother's race/ethnicity, source of income, living arrangement, and

whether or not they were prior perpetrators; time to SUD treatment, treatment admission, level of care, treatment completion status, number of prior treatment episodes; and housing services. As shown in Table 43, after controlling for the significant variables in each model, the following variables remained significant: child's age and whether or not the child was a victim of prior abuse; time to treatment and level of care.

Table 42

Summary of Bivariate Analysis for Timeliness of Reunification (Option 2): Only Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	
Child Prior Abuse Victim	X
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	
Education	
Employment	
Source of Income	X
Living Arrangement	X
Primary Caregiver	
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	X
Treatment Admission Status	X
Level of Care	X
Time in Treatment	
Treatment Status	X
Prior Treatment Episodes	X
Service Engagement Characteristics (Mother)	
Domestic Violence Services	
Employment/Vocational Services	
Housing Services	X
Mental Health Services	
Parent Training/Education Services	

*X significant at $p \le .05$

Table 43

Summary of Multivariate Analysis for Timeliness of Reunification (Option 2): Only Child

Socio-Demographic Characteristics (Child)	
Age	X
Gender	
Race/Ethnicity	
Child Prior Abuse Victim	X
Socio-Demographic Characteristics (Mother)	
Age	
Race/Ethnicity	X
Marital Status	
Education	
Employment	
Source of Income	
Living Arrangement	
Primary Caregiver	
Prior Maltreatment Perpetrator	X
Subsequent Maltreatment	
Substance Use Characteristics (Mother)	
Methamphetamine Use as Contributing Factor	
Primary Substance Problem	
Time to Treatment	X
Treatment Admission Status	
Level of Care	X
Time in Treatment	
Treatment Status	
Number of Treatment Episodes	

*X significant at p ≤ .05

Chapter 5: Discussion

Review of the Study

Parental substance use is associated with deleterious clinical outcomes for children, such as mental health and substance use issues, unwarranted financial expenses for the child welfare system from investigating, monitoring, and foster care placements, and imminent costs to society like family disintegration as the cycle of abuse continues (Swenson et al., 2009). The striking rise in opioid use, addiction, and overdose has a significant impact on the child welfare system. Previous research suggested that children with parents who used illicit substances have a higher probability of continued involvement with child protective services (Laslett et al., 2012; Smith & Testa, 2002), stay in foster care longer (Brook et al., 2010), and are more likely to be adopted (Cheng, 2010; Vanderploeg et al., 2007). Literature posits that reunification is most successful when it occurs within the first six months after the child enters foster care (Courtney, 1994; Goerge, 1990). When a child reaches the three-year mark after being placed, there is an equal likelihood that the child can be either be reunified or adopted; however, at four years, there is a greater likelihood for adoption (Wulczyn, 2004).

To address these issues, programs were funded to address illicit substance use with families involved in the child welfare system, such as the Regional Partnership Grants (RPG) through interagency collaboration. These grants were utilized to fund services and programs to increase well-being, improve permanency outcomes, and enhance safety of children in out of home placement as a result of the mother's substance use. An administrative database from 53 regional partnership grantees of parents who were involved in the child welfare system was developed: Targeted Grants to Increase the

Well-Being of and to Improve the Permanency Outcomes for Children Affected by Methamphetamine or Other Substance Abuse from 2007-2012. To further address the issue of improving permanency outcomes, this study analyzed a subset of parents and children in the database - 4,623 mothers and 6,495 children in the youngest, oldest, and only sibling groups - to determine the relationship between (1) reunification and (2) timeliness of reunification of children with their mothers and the characteristics of the children and their mothers.

This chapter begins with a reiteration of the study questions and the characteristics of the children and mothers that were considered. Next, a description of the significant multivariate analyses and their associated prior studies is presented. Both of the significant bivariate (unadjusted) and multivariate (adjusted) analyses for substance use and service engagement characteristics are summarized. Subsequent to the significant findings, the study's strengths and limitations are provided. Lastly, the implications and conclusions are discussed.

Study Questions and the Characteristics of the Children and their Mothers

The following overarching questions were considered: (1) what characteristics of children and mothers are associated with reunification and timeliness of reunification, and (2) which characteristics remained significantly associated with reunification and timeliness of reunification after adjustments were made for the other respective characteristics. Characteristics of the child that were considered were age, gender, race, and whether or not the child was a victim of prior abuse. The characteristics of the mother included age, race, marital status, education, employment, source of income, living arrangement, and whether or not the mother was a primary caregiver, a prior

perpetrator, and had subsequent child maltreatment. In addition, factors that were related to a mother's substance use and service engagements were considered. The substance use characteristics were whether or not methamphetamine use was a contributing factor for the indication of child maltreatment, primary substance problem, time to treatment, treatment admission, level of care, treatment completion, and prior treatment episodes. The factors that were associated with service engagement included whether or not mothers initiated domestic violence, employment/vocational, housing, mental health, and parent training/education services.

Significant Findings

Reunification of children and their mothers.

Overall, 42% of the 6,495 children were reunified with their mothers, and over 67% were reunified within one year or less. The Adoption and Foster Care Analysis and Reporting System (AFCARS) reported that according to national estimates, 49% of children were reunified with a parent (USDHHS, 2018). When parental substance use is present, as in the current study, literature supports that the probability of achieving reunification decreases. Lloyd et al. (2017) found that 41.4% (n = 1,793) of children who were removed due to parental substance use were reunified with their parent. Child characteristics impact reunification.

Child characteristics.

A child's age was a significant predictor of reunification and timeliness to reunification for the only children but not for the youngest and oldest children. Younger children in the only child sibling group were less likely to be reunified. Inconsistency in the literature is present when it comes to determining whether or not child age was a

predictor of reunification. Hines et al. (2007) conducted a study which revealed that the younger the children were, the more likely they were to be reunified. More specific to particular age groups, Connell et al. (2006) found that children ages 2-15 were more likely to reunify than infants and youth ages 16 and older. Courtney (1994) reported similar findings that infants were less likely to reunify compared to older aged children. Conversely, Grella et al. (2009) found that children in older age categories were more likely to be reunified as compared with children in the youngest age category, which was 0-2 years.

Race/ethnicity was significantly associated with reunification in all sibling types. Findings from this study revealed that African American children were less likely to reunify compared to Caucasian children. Potter and Klein-Rothschild (2002) found that African American children were less likely to achieve reunification compared to Caucasian children. Similarly, Caucasian children are more likely to reunify than African Americans (Connell et al., 2006; Wulczyn, 2004). In addition, Caucasian children reunify faster with their families than any other ethnic/racial group, followed by Asian, Latino, and African American children (Wells & Guo, 1999). Some studies found that ethnicity was not a predictor of reunification (Cheng, 2010; Grella et al., 2009; Hines et al., 2007; Osterling, Lee, & Hines, 2012).

Mother's socio-demographic characteristics.

Age was a significant prediction of reunification in mothers of only children. Other research studies also found that older caregivers were more likely to achieve reunification (Choi et al., 2012; Choi & Ryan, 2007; Orsi, Winokur, Crawford, Mace, & Batchelder, 2012).

A consistent finding throughout all analyses was that African American mothers were less likely to be reunified with their children compared to Caucasian mothers. For the youngest children, mothers who were in the other race category were more likely to be reunified compared to Caucasian mothers. For the only children, Hispanic mothers were more likely to be reunified as compared to Caucasian mothers. Conversely, other literature supports the fact that mothers' race had no statistically significant impact on reunification or time to reunification (Cheng, 2010; Grella et al., 2009).

Both the youngest and oldest children showed significant associations between marital status of the mother and reunification. Married mothers were more likely to be reunified with their child compared to mothers who were separated, divorced, or widowed. Hines et al. (2007) found that mothers who were currently married were more likely to be reunified. Similarly, Choi et al. (2012) concluded that married mothers were more likely to be reunified with their children. Families headed by a single parent were associated with a lower likelihood of reunification (McDonald et al., 2007; Rockhill et al., 2007; Wells & Guo, 1999).

The mothers' educational status had a significant impact on reunification. Mothers with more than 12 years of education were more likely to be reunified, and for the youngest children, the mother's education level was associated with reunification within one year or less. Grant et al. (2011) found that mothers who never had their child removed had more education than those who had their children removed. One study found that mothers who had at least 12 years of education reduced their likelihood of child welfare involvement (Grella et al., 2006). Conversely, Choi and Ryan (2007) found that mothers who had less than a high school education increased the likelihood of

reunification. More education leads to better employment and more household income. Child welfare workers and substance use disorder treatment programs should have an educational/vocational component.

The mothers' employment status had a significant impact on reunification but not for timeliness of reunification. In the oldest child sibling group, unemployed mothers were less likely to reunify as compared to mothers who were in the labor force. In the only child sibling group, employed mothers were more likely to reunify as compared to mothers who were not in the labor force. Mothers who had more problems with employment were more likely to be involved with the child welfare system and less likely to reunify (Grella et al., 2006, 2009). Furthermore, Hines et al. (2007) found that employed mothers were 1.7 times more likely to be reunified than unemployed mothers. Choi and Ryan (2007) asserted that unemployed mothers were more likely to be reunified with their children.

Findings for the current study show that mothers of children in the only child sibling group who had wages/salary as their source of income were more likely to reunify. Lack of income and poverty are associated with reduced rates of reunification (Wells & Guo, 2004). Mothers who were on public assistance, measured through Temporary Assistance for Needy Families or public housing, had a lower likelihood of being reunified with their children (Fernandez, 1999). On the contrary, Wells and Guo (2006) found that mothers with a higher percentage of income from employment that occurred after the child was placed reunified slower than mothers with a lower percentage of income. Caregivers with more earnings were less likely to reunify with their children compared to caregivers with less earnings (Lee, Romich, Kang, Hook, &

Marcenko, 2017). This alerting finding may be due to the types of employment that were obtained where there was a barrier with the availability of child care, or the employment conflicted with child welfare services requirements.

Mother's substance use characteristics.

Mothers were less likely to be reunified if methamphetamine use was indicated as a reason for maltreatment. This finding is consistent with Akin et al. (2015) and Carlson et al. (2012) who found that methamphetamine use had the most significant impact on reunification showing that users were less likely to be reunified with their children. Mothers whose primary substance problem was heroin/opiates were less likely than alcohol users to be reunified. Mothers of only children who had cocaine/crack as their primary substance problem were less likely to be reunified. This finding is consistent with Choi and Ryan (2007) and Grella et al. (2009) whose findings revealed that reunification rates are lower for both heroin/opiates and cocaine as compared to alcohol use. Grant et al. (2011) found that alcohol did not have as much of an impact on reunification rates as other drugs. Illicit substances had a greater impact on reunification rates than alcohol (Lloyd & Akin, 2014).

With all of the mothers in this study, treatment admission was significantly associated with increased reunification rates. The study findings indicate mothers who had access to substance use treatment faster were more likely to be reunified to their children. Similarly, women who entered treatment quicker, spent more time in treatment, and who completed at least one treatment were more likely to reunify and their children spent fewer days in foster care (Green et al., 2007).

Level of care had an impact on reunification. Research is ambivalent on which level of care improved reunification rates. Outpatient treatment was associated with a higher likelihood of child welfare involvement compared to residential treatment programs (Grella et al., 2006). Mothers who entered early intervention were more likely to be reunified compared to mothers who entered residential treatment. It is surprising that mothers who entered residential treatment did not improve the likelihood of reunification. Chen et al. (2004) reported that mothers who had their children remain in their physical custody in residential treatment or in intensive outpatient treatment were more likely to complete treatment and thus more likely to achieve reunification.

Given the complex needs of substance using mothers involved in the child welfare system, time in treatment and treatment completion becomes even more important. Mothers who completed treatment were more likely than mothers who did not complete to be reunified with their children. Mothers who do not complete treatment were significantly associated with continued substance use, which may lead to termination of parental rights (Gregoire & Schultz, 2001). Smith (2003) had similar findings that treatment completion was associated with higher rates of reunification. Green et al. (2007) also concluded that treatment completion and the time spent in treatment were associated with increased likelihood of reunification and fewer days spent in foster care.

Literature posits that prior treatment improves the likelihood of reunification. Mothers who had no prior treatment episodes were less likely than mothers who had 2-5 prior episodes to be reunified with their children. Green et al. (2007) had similar findings that mothers who completed at least one prior treatment episode were more likely to reunify, and the children spent fewer days in foster care. Similarly, Choi et al. (2012)

found that mothers who completed at least one treatment episode had higher rates of reunification. Substance use disorder treatment is not the only service linkage that had a significant association with reunification.

Mother's service engagement characteristics.

Service engagement and utilization within substance using mothers within child welfare reinforces the significance of their complex needs. Merely initiating services can improve the likelihood of reunification. Mothers who initiated employment/vocational services were more likely to be reunified. Mothers who have issues in education, job training, parenting skills, domestic violence, and mental health significantly reduced the likelihood of accomplishing reunification (Choi & Ryan, 2007); thus providing services for employment/vocational services improves the likelihood of achieving reunification. Mothers of the youngest and oldest children who initiated housing services were more likely than mothers who did not to be reunified with their children. Mothers of only children who initiated parent education/training services were more likely than mothers who did not to be reunified with their children. Consistent with this finding, Cheng (2010) and Osterling et al. (2012) posit that a greater likelihood of reunification is linked to identified needs for housing and parenting education. When child welfare professionals are able to provide connections to address basic needs, children are less likely to be placed in foster care (Keegan & Kopels, 2004).

Timeliness of reunification of children and their mothers.

Child characteristics.

Whether or not a child was a victim of prior abuse was a significant predictor of reunification. Children who were not victims of prior abuse were more likely to be

reunified within one year or less as compared to children who were victims. Similar to this finding, Connell et al. (2006) found that a history of two or more prior removals was associated with lower rates of reunification compared to children with no prior removals. In addition, other literature reported a history of foster care placements was associated with a lower probability of achieving reunification (Goerge, 1990; McDonald et al., 2007).

Mother's socio-demographic characteristics.

Homeless mothers for the youngest children were less likely to reunify within one year or less. Children of transient parents having a history of homelessness were less likely to achieve reunification (Potter & Klein-Rothschild, 2002) and had slower times to reunification (Courtney, 1994; Wells & Guo, 2004).

Mother's substance use characteristics.

Mothers of the oldest children who had marijuana as their primary substance were more likely to be reunified within one year as compared to alcohol users. Brook et al. (2010) found that drug users were associated with the slowest reunification in comparison with parents who did not use alcohol or other drugs. In addition, mothers who were using drugs only had children who stayed in foster care nearly six months longer than mothers who had no drug use indicated (Green et al., 2007). Mothers of only children who entered treatment were more likely to be reunified within one year or less compared to mothers who did not enter treatment. This finding is consistent with McDonald et al. (2007) who found that parents in treatment were slower to reunification and were significantly more likely to re-enter child welfare after reunification. Mothers who were still in treatment were more likely than mothers who did not complete to be reunified within one year or

less. This finding may suggest that children are returning to their mother's custody while they are in residential treatment. Mothers of only children who had no prior treatment episodes were less likely than mothers with 2-5 prior treatment episodes to be reunified within one year or less. This finding supports prior literature which concluded that mothers who completed at least one treatment episode had higher rates of reunification (Choi et al., 2012).

Mother's service engagement characteristics.

Mothers of the oldest and youngest children who initiated domestic violence services were more likely than mothers who did not initiate these services to be reunified within one year or less. For parents experiencing domestic violence, reunification rates were significantly lower than for parents not living with domestic violence (Hess, Folaron, & Jefferson, 1992). Mothers who initiated housing services were more likely than mothers who did not to be reunified within one year or less. Literature findings revealed that lower rates of reunification were statistically associated with inadequate housing and parent mental health problems (Leathers, 2002; Rockhill et al., 2007). Thus, providing services for housing improved the likelihood of reunification within one year or less.

Strengths of the Study

This dataset is large and complex which linked data for children and adults together as a family unit and tracked clients served over the time period of the grant project. The features of connecting the family unit and collecting data over the period of the grant makes it the most comprehensive quantitative dataset currently available on the outcomes of families affected by substance use and child maltreatment. A unique feature

of this study is how the samples are organized. Typically, the analyses of child welfare administrative data do not include a one mother to one child ratio. Therefore, the same mother is not accounted for multiple times when there are multiple children.

Limitations of the Study

This dataset, although large and complex, has limitations. First, the study is based on a child welfare administrative database which can have possible data entry errors, lack of connection throughout all of the variables, and absence of valuable parent and family level variables. Second, the RPG performance measurement method was not constructed as a cross-site evaluation. This type of evaluation would require all of the sites to implement the same model and seek to determine whether this model is effective when replicated in different sites. This was not the case for this dataset since it represents 53 grantees that implemented different program models and strategies. Third, the results reported are exploratory since the data represent families served through the midpoint of the program and results may change as more families are served by the program. Furthermore, the various array of community resources and the economic environment may impact the outcomes. The missing values once the variables entered into the model together may not accurately represent the associations. Finally, statistically significant findings do not suggest clinical significance of the findings.

Implications to Practice and Policy

The ability to analyze various child, adult, and family level variables and their impact on reunification can provide implications for social work practice. The average time that a mother entered treatment was 5.79 months. It is essential that mothers enter treatment quicker as it is associated with a higher likelihood of reunification (Green et al.,

2007). Interagency collaboration and continued education of the child welfare workers can provide a resolution for quicker access to treatment for substance using mothers. One promising approach for the interagency collaboration between substance use disorder treatment and child welfare is the Sobriety Treatment and Recovery Team (START) model. This model is a child welfare-based intervention focused on families with issues with substance use and child maltreatment (Huebner, Willauer, & Posze, 2012).

With this model, child welfare practitioners receive special training in substance use and motivational interviewing. In addition, the clients are paired with a family mentor similar to a recovery coach who coaches and supports parents with child welfare and drug addiction treatment. The specially trained child welfare worker sustains a low caseload. This allows for the delivery of intensive individualized services using both formal and natural supports to promote recovery and family well-being. This model also supports the use of Medication Assisted Treatment. Lundgren, Fitzgerald, Young, Amodeo, and Schilling (2007) found that mothers who receive MAT may be more likely to retain custody of their infant children.

Another consideration for interagency collaboration is utilizing residential treatment. Chen et al. (2004) reported that mothers who had their children remain in their physical custody in residential treatment or in intensive outpatient treatment were more likely to complete treatment and thus more likely to achieve reunification. Yet in this study and in other literature, mothers who received treatment at a residential treatment center only had the lowest reunification rates (Huang & Ryan, 2011). Previous evaluation of programs that utilize residential treatment to improve reunification should inform similar programs. Residential treatment seems to be a great tool for reunification but must

be combined with other services to yield successful outcomes. In addition to residential treatment, there was a significant finding that mothers who entered early intervention were more likely to be reunified. Therefore, social workers should identify parents who may benefit from these services and make appropriate linkages. In addition, regional partnership grants should be awarded to early intervention programs and the creation of such programs specifically focused on families affected by alcohol and drug use and involved in the child welfare system.

Due to the racial disparity that is supported by the literature and this current study, federal child welfare and substance use laws should focus funding for creating models and programs to specifically target those vulnerable populations. Increasing access to treatment by providing funding to increase the availability of residential treatment programs that focus on substance abusing mothers in child welfare could improve the current intervention strategies. With the passage and implementation of the Families First Prevention Act, this study can inform the data monitoring requirement for future RPGs.

Implications to Social Work Education

Results from this study can provide implications for social work education. Innovative techniques to social work curriculum are important to ensure students are equipped with current strategies for social work practices. In terms of accreditation from the Council of Social Work Education (CSWE), only 14.3% offered a specialization in SUD training, and only 4.7% had one or more course offerings related to SUDs (Quinn, 2010). In particular, the child welfare track in MSW programs should require substance use disorder courses as a requirement for the area of specialized practice.

There are multiple methods in which the university could partner to provide the necessary substance use education. Title IV-E training funding allows for state child welfare agencies to partner with social work education programs to strengthen and professionalize the child welfare workforce (Social Work Policy Institute, 2012). This existing partnership would be a great opportunity to intervene and address the lack of substance use training within the child welfare workforce. Substance use training could be incorporated in the traditional child welfare training. Another model could consist of offering the substance use training designed specifically for child welfare workers to include motivational interviewing and training on SBIRT.

Implication for Future Research

The results of this study provided knowledge to guide future research. Research generally does not differentiate between type of substance use problem, thus creating perplexities assessing intervention outcomes based on the parents' primary substance problem. Further research should address this. In addition, given the rise in opioid use, Medication Assisted Treatment (MAT) and its impact on reunification should be evaluated. There were several variables that could not be analyzed due to missing values, including frequency of drug use, type of child maltreatment, and time to substance use treatment assessment. Equally important, there were several variables that were not addressed in this dataset, such as whether or not the child was born drug exposed, whether or not the parent had childhood trauma, and the inclusion of prescription misuse. In general, medication assisted treatment programs should be explored to determine the impact on reunification and timeliness of reunification. More specifically, with the opioid crisis it is important to understand how opiate users are being treated for the substance

use issue and how this impacts reunification rates and timeliness of reunification. Also, focusing on the type of illicit substance and how it impacts reunification can inform both the substance use treatment and child welfare systems. Lastly, future research should examine reunification of children and fathers and the impact of children's birth order on reunification.

Conclusion

In general, the significant findings were dependent upon (1) the particular study question, (2) the sibling group, and (3) the variables under consideration, separately or jointly. Questions regarding reunification and timeliness of reunification among all mothers/children explored two different constructs and demonstrated different associations. One mother to one child sibling groups demonstrated that there were variations in relationships dependent on child order and even variations between the same mothers that was dependent upon which child, youngest or oldest, was under consideration. Variables that were considered separately presented different profiles for reunification and timeliness of reunification than when they were considered jointly. Across all sibling groups, African American children/mothers were significantly less likely to be reunified when race/ethnicity was considered separately or jointly with other variables. As this study has demonstrated, the complex needs of children and mothers involved in the child welfare system, service utilization, time in substance use treatment, and completion of treatment become even more important. Results of this study also suggested that substance use characteristics, in particular treatment admission, early intervention, and treatment completion had a positive impact on reunification and timeliness of reunification. More importantly, this study will help to guide collaborations

that will produce more effective innovations in program development, practice, and

policies designed to prevent child maltreatment in families who are affected by alcohol

and other drugs.

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