The Association Between Out-of-home Placement Characteristics and Crossover from the Foster Care System to the Juvenile Justice System: Risk and Protective Factors

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Faith VanMeter

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Abstract

Youth within the out-of-home care system are at increased risk for a variety of negative developmental outcomes, including increased risk for juvenile delinquency and later criminality as adults. However, little is known about which characteristics of out-of-home placements increase versus reduce risk for delinquency. The current study used data from the Minn-LInK Project (Minnesota-Linking Information for Kids), which is housed in the University of Minnesota's Center for Advanced Studies in Child Welfare (CASCW), to establish a link between foster care placement characteristics and the likelihood and timing of initial contact with the juvenile justice system. Further, a Latent Class Analysis was conducted to explore profiles of placement characteristics. The sample followed 981 Minnesotan youth who were born in 2000 or 2001 from birth until age 18. The study integrated state administrative data from out-of-home care, child protection, the education system, and the juvenile court system to predict crossover into the juvenile justice system. The current study also utilized a multiverse approach, in which researchers systematically conduct analyses that answer the same research question, but differ in decisions leading up to that answer, such as decisions about coding, data transformations, or analytic techniques, resulting in three unique datasets. Results indicated that removal for a child or parent reason and being identified as male, American Indian/Alaska Native, or receiving special education services robustly predicted the overall risk and/or timing of crossover. Study findings provide significant insight that can aid child welfare practitioners and researchers, and inform policies and practices related to the structure of the child welfare system.

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Chapter 1: Introduction and Literature Review

In Minnesota, a recent report on child welfare estimated that in 2020, 13,442 youth were living in out-of-home care (Minnesota Department of Human Services (DHS), 2021). In Hennepin County alone, 2,553 youth were in the foster care system in 2020 (Minnesota DHS, 2021). Throughout this dissertation, out-of-home care, out-of-home placement, and foster care are used interchangeably, and is defined as any 24-hour substitute care for youth who are placed away from their legal guardians due to safety or mental health needs into the responsibility of social service agencies, and is inclusive of residential, group home, kinships, non-relative, emergency shelter, and pre-adoptive home settings. Youth within the foster care system are at increased risk for a variety of negative developmental outcomes, including increased risk of developing antisocial personality and conduct disorders in childhood, delinquency in adolescence, and criminality as adults (Berlin et al., 2011). Youth who first enter the child welfare system and then enter the juvenile justice system are commonly termed "crossover youth" (Lee & Villagrana, 2015). Adolescents with child welfare involvement who cross over into the juvenile justice system begin offending at an earlier age and are more likely to commit more serious offenses than adolescents who are not in the child welfare system (Ryan et al., 2010). Leathers (2002) found that approximately a quarter of youth in foster care exhibit/demonstrate delinquent behavior. This represents a much higher percentage than the 4-16% of youth in a non-foster population who have a history of delinquency. Furthermore, in Ryan and colleague's (2007a) sample of male adolescents in foster care, 45% were arrested at least once during the 4-year duration of the study. However, many youth in the child welfare system do not follow these negative developmental trajectories.

Though some out-of-home placements, such as residential homes, have been shown to increase risk for youth crossing over into the juvenile justice system (Ryan et al., 2008a), other out-of-home placements, such as kinship care, have been found to reduce this risk (Farineau & McWey, 2011).

The aim of the current dissertation was to establish a link between placement characteristics and the likelihood and timing of initial contact with the juvenile justice system for Minnesotan youth using administrative data connecting their involvement in various state systems. The dissertation will adopt a risk and resilience framework, and thus aims to understand which out-of-home placement factors are associated with an increased or decreased likelihood of crossing over into the juvenile justice system. It is critical to examine the relationship between youth's experiences in the child welfare and juvenile justice systems to better understand why some youth have contact with the juvenile justice system while others do not. With this knowledge, child welfare practitioners and policymakers may be able to more effectively intervene to prevent youth from experiencing this negative outcome.

This chapter begins with an overview of the process of removing youth from the home. Next, the framework of risk and resilience (Masten, 2001) is proposed to guide the framing of the dissertation. Following that, a variety of systems theories that guide the dissertation are discussed. Literature concerning both risk and protective factors for crossing over are then reviewed, including age at first removal, placement types, placement instability, total time in care, removal reasons, school mobility, and youth characteristics. Following this, literature related to latent class analyses of foster youth samples and the timing of youth's initial contact with the juvenile justice system are

discussed. Next, the concept of a multiverse approach is introduced. Lastly, the current dissertation is discussed, including context about Minnesota's child welfare system, research questions, and hypotheses.

Overview of the Home Removal Process

According to the Administration for Children and Families (2013), youth are removed from their homes for a variety of reasons. Although the most frequent motivation for removal is abuse or neglect, frequently cited reasons also include parental incarceration, substance abuse, or death. Since 2016, Minnesota has seen an increase in youth being removed from the home for parental drug use and this was the primary reason of removal for 32.6% of new cases in 2020 (Minnesota DHS, 2021).

When youth are removed by Child Protective Services (CPS), a report must first be made. The report can be made by anyone, including a school employee, therapist, family member, or neighbor, and can be done anonymously. Some reporters are mandatory reporters, meaning that they are required by law to make a report if they suspect abuse or neglect. In Minnesota, individuals employed in certain fields are mandated reporters, including social services, psychological or psychiatric treatment, education, childcare, law enforcement, and hospital administration (MN Statute § 626.556). CPS then reviews the report and decides if an investigation should be opened. If CPS determines that youth are in immediate danger and no safety plan can be put in place to maintain the child within their home, they are removed from the home and placed in a temporary setting until a long-term placement can be found. If there is no immediate danger, CPS will investigate the situation and decide if removal from the

home is the best solution or if the youth should remain in the home and receive services. The goal CPS sets for most youth in out-of-home care is reunification with their families, but sometimes this is impossible if the court deems the environment unfit or unsafe for the youth's return. In these cases, parental rights are terminated, and the adoption process begins for the youth. Even when reunification is the ultimate goal, out-of-home care can be long-lasting. The average time spent in out-of-home care is 22 months (ACF, 2013) and youth often move between different settings during this time (Ryan & Testa, 2005).

There are two broad categories of out-of-home placements: foster homes and residential settings. Foster homes are homes in which one or two foster parents temporarily take over care for the youth. It is preferred for youth in foster care to be placed with adult relatives or known others ("kinship care"; Minnesota Statute § 260C.212). Residential settings, on the other hand, include group homes, detention centers, and residential treatment facilities. These settings are typically reserved for youth who have more intensive physical or psychological needs than can be met in foster homes. Residential settings typically house a quarter of the youth in out-of-home care at any given time (Ryan et al., 2008a). In Minnesota, 30.8% of youth in out-of-home care were placed in residential settings in 2020 (Minnesota DHS, 2021). Most youth in out-of-home placements, however, are in the care of a foster parent, with 50% of Minnesotan youth in care placed in kinship care and 39.5% of Minnesotan youth in care placed in non-relative foster care in 2020 (Minnesota DHS, 2021).

Risk and Resilience Framework

The majority of work examining the effects of out-of-home placement characteristics on youth focuses on negative developmental outcomes, though there is a sizeable literature examining resilience in foster care youth generally (see Healey & Fisher, 2011 for a review of predictors of favorable outcomes for foster youth). For example, much work has focused on the maladaptive outcomes associated with placement instability (Lewis et al., 2007) and placement settings (Leslie et al., 2002; Marinkovic & Backovic, 2007), but relatively little work has focused on the youth who are resilient to these negative environmental influences. Though learning about placement characteristics associated with negative outcomes is informative, it may be more practically beneficial to understand how out-of-home placement characteristics can promote youth wellbeing. Because it is unlikely that society will ever be without the need for a child welfare system, researchers and policy makers can only work to improve the system and understand the ways in which youth's wellbeing can be promoted after being placed in this system. Therefore, the current dissertation adopted a risk and resilience framework.

It is important to first define resilience and explain how this framework is appropriate for the current dissertation. Resilience is a dynamic process, meaning that it is neither static nor trait-like, and encompasses an individual's capacity to positively adapt following adversity (Luthar et al., 2000; Masten, 2001). There are a variety of ways that researchers can conceptualize positive adaptation, including *surviving* after experiencing adversity or *thriving* after experiencing adversity (VanMeter & Cicchetti, 2021). The current dissertation conceptualizes positive adaptation as the individual being competent in a domain after experiencing adversity. Specifically, an individual who does

not enter the juvenile justice system following adversity (placement in out-of-home care) represents positive adaptation. This approach is consistent with many other conceptualizations of resilience in which maintaining a normative developmental trajectory, as opposed to demonstrating maladaptive behaviors, is considered positive adaptation (Luthar, et al., 2000; Masten et al., 1995; Sroufe, et al., 1990).

According to the risk and resilience framework, protective factors must be understood in relation to patterns of risk and vice versa (Little et al., 2004; Schofield & Beek, 2005). In other words, risk and resilience are conceptually intertwined – to take the perspective of one is to incorporate the perspective of the other. For many developmental researchers, it is likely that their variables of interest have both risk and protective effects on their outcome variable depending on their range of measurement (National Research Council and Institute of Medicine, 2009). For example, a researcher might, instead of stating that increased placement changes increase risk for delinquent behavior, describe their results as supporting a limited number of placement changes because youth in more stable environments are at a lower risk for delinquent behavior. Thus, the factor in question (number of placement changes) could be identified as a risk factor for one individual and a protective factor for another. However, some researchers carefully differentiate effects that promote risk from those offering protection (National Research Council and Institute of Medicine, 2009). For example, a researcher might find that kinship care helps promote youth wellbeing but does not put youth at additional risk by its absence. Therefore, the factor (kinship care) has been identified as protective, but lack of this factor does not necessarily introduce additional risk. The current dissertation will

clearly differentiate which factors promote risk versus protection throughout the literature review and study findings.

Guiding Systems Theories: Bronfenbrenner, PVEST, and the M(ai)cro System

Bronfenbrenner's Ecological Systems Theory: Description and Limitations

Description of Ecological Systems Theory. Bronfenbrenner's (1979; 1994) Ecological Systems Theory was established to understand youth development within the context of the systems of relationships that form their environment. The theory describes multiple levels of systems (described below) that interact with each other to shape development. This theory profoundly shifted the way in which researchers understood and empirically tested children's development, from focusing on the child (or mother-child dyad) in isolation, to examining the child as nested within interconnected systems (Rogers et al., 2021). Bronfenbrenner's (1979) theory proposes 5 layers of systems in which the individual is nested: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. This theory posits that each system has an ongoing, reciprocal relationship with the other systems. Because one cannot isolate an individual from its whole system, it is vital to consider these systems and how they interact with each other to understand development (Haskett et al. 2006).

The microsystem refers to the contexts that are closest to the developing person (Bronfenbrenner, 1979). These are the aspects that shape development most obviously and directly. Examples include an individual's family, peers, religious group, and class at school. For youth in out-of-home care, their micro-system could include their biological family, foster family, case manager, and peers in or outside of their placements. It is vital

to also consider how the different elements within the microsystem interact with one another and impact development. These interactions within the microsystem are known as the mesosystem and can include interactions such as parents' involvement in school (Bronfenbrenner, 1979). For youth in the child welfare system, this system can be particularly impactful because many different elements of the microsystem collaborate to attempt to promote a youth's wellbeing, such as the child welfare agency, foster family, and biological family (Farineau, 2016). The third system, the exosystem, refers to formal and informal social structures that may not contain the individual, but still directly (and indirectly) influences aspects of the microsystem and thus still greatly impacts development (Bronfenbrenner, 1979). Examples of this system include caregivers' places of work, neighborhood factors, and the school district that youth attend. The fourth system is the macrosystem, which refers to the larger social setting in which the individual is developing (Bronfenbrenner, 1979). This includes elements such as policies, laws, and cultural values. Lastly, the chronosystem consists of the historical experiences and major life events within an individual's lifetime. The chronosystem also includes how other systems change and transition over time (Bronfenbrenner, 1979).

Ecological Systems Theory Limitations. A critical component of Bronfenbrenner's (1979; 1994) theory is the proximity of each level to the individual. Bronfenbrenner visually represented his model in a nested fashion, with an individual at the center, and each system surrounding the individual, with systems becoming increasingly distal. Thus, the microsystem is closest to the individual and the macrosystem is furthest away. Though Bronfenbrenner has acknowledged the significance of all systems on development, developmental research utilizing this model

has predominately focused on the settings that are most proximal to the child, such as parents, siblings, peers, and teachers. These proximal processes have been described as the "engines" of development by Bronfenbrenner and Ceci (1994). Critics have commented that the macrosystem, which is viewed as distal in Bronfenbrenner's model, should be considered a proximal, rather than distal, influence on development (Huang et al., 2012; Rogers et al., 2021). Cultural ideologies and policies help fuel the "engines" of development (Rogers et al., 2021), and considering the macrosystem as distal rather than proximal conceals the direct influence this system can have on development. This is particularly crucial when examining developmental outcomes of foster youth, who are even more obviously and directly influenced by state and federal policies than youth who are not in the state's care.

Further, it is possible than Bronfenbrenner's hypothesis that all systems are reciprocally related, while idyllic, is not equally applicable to all levels, particularly when considering the significance of the macrosystem. For example, it is clear to see how a child influences and is influenced by parenting techniques; however, it is less clear how children directly influence important policies (such as guidelines for foster care placements and cash assistance programs for families) that greatly influence their own wellbeing.

Reconceptualizing Bronfenbrenner: Emphasizing the Influence of the Macrosystem

Criticisms of Bronfenbrenner's work led to new models that retain the main components, but not structure, of his original model. For example, Cicchetti and Lynch (1993) emphasized the direct role children's macrosystem can have in their ecological/transactional model of community violence and child maltreatment,

emphasizing how multiple ecologies (such as local cultures, communities, and families) interact with the presence of community and family violence to impact child ontology.

Researchers studying the role of culture in development have revised the theory to reflect the central role culture and racism have in influencing all facets of development. An early revision was Spencer's phenomenological variant of ecological systems theory, which situates structural inequality at the center of the model. (PVEST; Spencer et al., 1997; Spencer, 2006). PVEST is a human development framework that emphasizes the role of individuals' own perceptions on their development. First, this theory critiques Bronfenbrenner's model for failing to include societal systems of opportunity and inequity that shape the systems that make up children's lives. Second, PVEST emphasizes the role of individuals' own agency, including understanding, interpreting, and meaning making, in shaping their development. The unique perspectives of youth must be considered to understand their developmental trajectories (Velez & Spencer, 2018). PVEST was created to eliminate researchers' assumptions about deficits and environmental risks of youth from ethnic and racial minority groups. For example, rather than viewing school dropout as poor social functioning, for youth who are having corrosive experiences in school, dropout can be seen as positive adaptation. This calls for a total flip in perspective: instead of asking typical deficit-oriented questions, ask how the (societal/political) environment is creating stressors that youth are forced to negotiate. In this way, PVEST challenges researchers to not view the macrosystem as a distal and indirect influence, but to consider how it directly influences the way youth interact with and perceive the world, and thus directly shaping development (Velez & Spencer, 2018).

Another example of a revision of Bronfenbrenner's ecological model is García Coll's (1996) Integrative Model of Child Development which posits macrosystem factors (such as race and ethnicity) as foundational to all developmental processes and outcomes (Causadias, 2013). Similarly, Huang and colleagues (2012) created a model which flips Bronfenbrenner's original model inside out, situating culture (rather than the self) in the center of the model. This model emphasizes that culture is centralized within the self and permeates throughout all other systems. The authors note that this version of the model is consistent with Bronfenbrenner's written (but not visual) description of the theory, in which culture is acknowledged as having a central, rather than distal, position in development (Huang et al., 2012). This model provides a visual description of how proximal processes and culture are interwoven, with all proximal processes being cultural in nature.

Rogers and colleagues (2021) proposed the term "m(ai)cro" to center the macrosystem in Bronfenbrenner's ecological systems theory and developmental psychology broadly. The term was developed specifically in relation to racism and racial socialization but can be easily applied to other macrosystem concepts. The word "m(ai)cro" aims to reflect that macro and micro processes are both simultaneous and transactional in development. Therefore, researchers should be asking where the "macro" is nested within proximal ("micro") processes. For example, rather than asking how parents socialize their children about race, it might be more useful to ask how being raised in a racist society is a process itself of racial socialization. Here, the focus is taken off specific interactions amongst individuals and instead focuses on the macrosystem as an agent of socialization (Rogers et al., 2021). Further, Rogers and colleagues (2021)

posit a transactional relationship between the micro and macro systems such that individuals are both recipients and agents. For example, individuals are influenced by structural racism, but also have the ability to resist societal powers and be active agents of change. This concept is built off Vélez-Agosto and colleagues' (2017) cyclical ecological model that has culture at its center. These models call for the recognition of the "macro" in the "micro" processes that are studied (Rogers et al., 2021).

Integration of Systems Theories Guiding the Current Dissertation

Taken together, these various ecological frameworks make evident that the macrosystem matters and plays a proximal, rather than distal role in shaping development. Though the models in the previous section were developed specifically around culture and racism, they are applicable to the current study. The current dissertation centralizes the macro-system by examining how specific social structures, such as racism and gender roles, will influence risk of crossover for youth in out-of-home care. Using a PVEST framework, it is useful to ask not just what race/ethnicity and gender categories predict risk, but how structural racism and gender socialization may lead to coping reactions utilized by youth that they perceive as adaptive. Furthermore, pulling from the models discussed above about the necessity of integrating the macrosystem into the microsystem (García Coll, 1996; Huang et al., 2012; Rogers et al., 2021; Vélez-Agosto et al., 2017), the current dissertation acknowledges the significance of federal and state policies (macrosystem level factors) on everyday proximal processes within youth's microsystems and discusses these in the context of study findings. For example, policies dictate what guidelines are used to determine placements, the requirements of becoming a foster caregiver or residential treatment center, and what

preventative services are available to families to prevent child abuse and neglect (such as concrete economic supports, access to affordable childcare, Medicaid, etc.). Clearly, the macrosystem is not a distal system that does not directly impact youth and their families. Though the current dissertation focuses primarily on proximal processes within the microsystem (with whom the youth is placed with and why) and the exosystem (how school mobility influence development), some macrosystem factors (how youth are affected by racial and gender disproportionalities) are included.

Summary

In summary, the dissertation is primarily guided by Bronfenbrenner's Ecological Systems Theory, but brings the macrosystem from the outer circle into the inner circle of the model, thus creating the m(ai)cro level (Rogers et al., 2021). This acknowledges the centrality of the macrosystem on all other systems and is particularly central for youth in the state's care, who are greatly impacted by state and federal policies. This overarching theory is complimented by the risk and resilience framework in the current dissertation by discussions of risk and protective factors found throughout ecological systems.

Placement Characteristics and Risk of Crossover

Age at First Removal: Risk Increases with Age

A limited amount of work has examined the associated impact of youth's age at first home removal in their risk of later delinquency. Early childhood is a time of many critical and sensitive periods (Werker & Hensch, 2015). The most critical synaptic pruning occurs in approximately the first five years of life and is the time when most major connective neural networks are established (Thelen et al., 1991). Given the

vulnerability of the brain during early childhood, the importance of parental care for developmental outcomes (such as attachment; Bowlby & Ainsworth, 2013) is particularly high during this period. An illustration of the particular influence of parents during the first years of life comes from Keiley and colleagues (2001), who examined the developmental timing of onset of physical abuse. These researchers found that youth experiencing the earliest onset of abuse (before age 5) were more likely to experience adjustment problems (internalizing and externalizing symptoms) in adolescence than youth who experienced later onset of abuse (after age 5) and those who did not experience abuse. This is one example of a whole field of work that is exploring the role of developmental period when examining how trauma influences developmental trajectories (Cowell et al., 2015; Dunn et al., 2013; Hecht et al., 2014; Manly et al., 2001).

However, early childhood is not the only window for plasticity. Puberty also marks another sensitive period for brain development in which the pubertal brain can undergo structural changes as a result of hormone exposure (Berenbaum & Beltz, 2011). As an example, researchers have found that the onset of puberty increases the likelihood of developing depressive symptoms for male and female adolescents (Sallis et al., 2017).

Because there are multiple windows of plasticity in childhood, and risks associated both with early stressful home environments and involvement in the child welfare system itself, it is perhaps at first glance unclear what the relationship would be between age of first removal and delinquency. However, there seems to be consensus amongst studies that youth who are older at the time of their first removal are at additional risk for delinquency compared to younger youth, regardless of race and gender

(Baskin & Sommers, 2011; DeGue & Spatz-Widom, 2009; Williams-Butler, 2018). One explanation of this finding is that youth who are first removed from their homes at an older age may have been exposed to adverse living conditions for a longer amount of time (Hiller et al., 2018). The longer youth are experiencing abuse, neglect, or other stressors, the more likely they are to develop negative developmental outcomes. Adolescents who entered the foster care system have been found to have more psychiatric disorders when entering care and over the course of their lifetime compared to youth who entered the system at a younger age (McMillen et al., 2005). Youth who were first removed from the home at a young age may have had a relatively limited time of stress exposure and interventions on their behalf may be more likely to occur before serious mental health problems manifest. Also, by early adolescence, maltreated youth may have experienced a hard wiring of neural circuitry that may impact their ability to regulate their emotions and adapt to new settings (Baskin & Sommers, 2011; Lee & Hoaken, 2007). Another explanation is that adolescents have invested more time and effort into their social bonds with their caregivers and others in their home environment, such as peers. It may therefore be more disruptive for them to be removed from that setting than youth who have had less time to invest in these social bonds (Hirschi, 2017).

Placement Type

In this section, three types of placements (kinship, non-relative foster, and residential care) are discussed in relation to increasing or decreasing risk of crossing over into the juvenile justice system. First, each placement type is introduced, including a discussion of unique benefits and drawbacks. Following that is a review of literature discussing risk and resilience factors related to these placement types.

Kinship Care: Description. Kinship care occurs when youth are removed from living with their parents and placed in the care of someone they know. Though the term "kinship care" implies that care would be limited to placements with a relative, many state agencies consider individuals beyond relatives, such as family friends or godparents, as kinship caregivers (Geen, 2004). Historically, relatives were not considered as a viable placement for youth removed from the home because kinship caregivers were untrained and were often in close contact with biological parents. Currently, however, agencies look to relatives as the preferred placement option (Children's Defense Fund, 2018; Jedwab et al., 2020). Many youth live with kinship caregivers unofficially, meaning the placement did not involve state child welfare agencies but was instead decided amongst family members. The current dissertation includes only youth who have formal placements with relatives that were organized by child welfare agencies. Youth placed in kinship care tend to differ from those in other types of out-of-home placements. For example, youth in kinship care tend to be younger and are more likely to be Black than youth in other types of out-of-home placements (Jedwab et al., 2020; Ryan et al., 2010).

Researchers have identified several potential benefits and challenges related to kinship care. In contrast to other placement types, youth placed in kinship care are likely to have a preexisting bond with the potential caregiver(s). Youth have typically already spent a sizeable amount of time with their new caregivers, allowing the new caregivers a more expansive knowledge of youth's particular needs at the onset of care. Additionally, kinship care is more likely to allow for continuality of cultural conditions. Furthermore, in most cases, youth in kinship care have more contact with their biological parents, and this contact is more regular, compared to youth in other types of placements (Jedwab et

al., 2020). Studies involving nonhuman primates and rodents have demonstrated that even a brief separation from caregivers can have adverse effects for infants (Dozier et al., 2002; Levine, 1983; Levine & Stanton, 1990). When length of separation surpasses the amount of time mothers typically forage for food, long-term effects on physiology have been noted for nonhuman primate infants (Coplan et al., 1998). Therefore, even placements that seem relatively short (such as a few weeks) may significantly impact infants' developmental outcomes. If reunification is a possibility, it is vital to maintain the parent-child dyad by allowing the parent to see the child, particularly for very young children. While this can occur in other placement types, it is most likely to occur in a kinship care setting. In sum, kinship care provides an increased continuity of care compared to other out-of-home placements that may be particularly important for infants and young children.

On the other hand, kinship caregivers tend to be older than caregivers of non-relative placements (Barth, et al., 1994; Coleman, 2016). These caregivers are also more likely to have physical health issues and be economically disadvantaged than non-relative caregivers (Coleman, 2016; Cuddeback, 2004). Grandparents often act as formal kinship caregivers. Keller and VanMeter (2021) proposed a model of various factors that may contribute to parenting stress among grandparents caring for their grandchildren, including increased health problems, psychological distress, and financial strain. These, taken with differing attitudes across generations toward parenting norms and the use of corporal punishment could lead to increased stress and even aggression towards youth in these settings. Finally, kinship caregivers receive, on average, fewer resources and less support from state agencies compared to non-relative caregivers (Coleman, 2016).

Kinship caregivers are less likely to receive formal training on foster parenting and receive less financial support to care for the youth placed in their homes (Coleman, 2016). This may have the unfortunate consequence of caregivers not recognizing or responding to youth's needs appropriately. For example, Swanke and colleagues (2016) found that youth who were placed in kinship care had similar levels of conduct disorder (a precursor to delinquency later in life; White et al., 1990) to youth placed in non-kin settings but were 14% less likely to receive mental health services. Although there are clearly many advantages to this type of care, caregivers face challenges that might put youth at additional risk for developing negative outcomes compared to other types of out-of-home care.

Non-relative Foster Care: Description. In contrast to kinship care, foster care refers to placements in a non-relative foster home. Many researchers and policymakers combine non-relative and relative care into the single term of "family" settings when discussing the impacts of placement type on development, but as Ryan and colleagues (2008a) point out, it is important to delineate the differences these types of care may have on youth outcomes. As the prevalence of kinship care has increased over time, that of non-relative foster care has decreased (Xu & Bright, 2018). Foster parents may have a variety of motivations for deciding to become a foster parent, including general altruism, feelings of social obligation, and a desire to help youth (MacGregor et al., 2006). Other motives may include religious reasons, need for income, and wanting to foster toward the goal of adoption (Baum et al., 2001; Rodger et al., 2006).

The majority of foster parents are White (~63%; US Department of Health & Human Services, 2021), married, and have household incomes below $30,000 (US

Department of Health & Human Services, 2021). Although foster parents must meet certain requirements (such as adequate and stable housing) and receive training to foster youth, they have historically been underpaid and expected to supplement a foster youth's care with their own funds (Jedwab et al., 2020). This is particularly problematic when considered in combination with the fact that youth in out-of-home care are more likely to have physical and mental health problems that require additional resources compared to youth not in out-of-home care (Washington et al., 2018). Though foster parents do receive some training, they often report that the training is inadequate and that they would benefit from continued training rather than training only before the onset of care. According to Chipungu & Bent-Goodley (2004), only one third of foster parents report feeling prepared when youth are placed with them. Though foster parents face challenges, they still form a relatively stable haven for youth that can allow for the formation of social bonds between caregivers and youth.

Residential Care: Description. Finally, residential care is a broad category of placements that includes group homes, campus-based homes, staff-secured settings, and youth correctional centers (Whitaker et al., 2016). This is a more unusual placement for youth removed from the home and is typically utilized after all other options have been exhausted because it is a much more restrictive environment. As stated in the 1980 Adoption Assistance and Child Welfare Act, only when other forms of less restrictive care are either unavailable or insufficient may youth be moved into residential settings (Ryan et al., 2008a). Youth who have been placed into residential settings are more likely to be older, male, Black, and have behavioral problems compared to youth placed in

other types of out-of-home care (Berrick et al., 1993; Knapp et al., 1987; Mech et al., 1994; Ryan et al., 2010).

Youth placed in residential care are also more likely to experience placement instability (Konijn et al., 2019), a risk factor discussed below. Furthermore, the potentially negative effects of peer contagion amongst youth (particularly adolescents) in residential settings is worrisome when considering deviant outcomes. This concern focuses on how exposure and social learning shape deviant behaviors. For example, Dishion and colleagues (1999; 2011) posit that the prolonged exposure to high-risk peers that youth in residential settings experience can have the unintended effect of exacerbating deviance through (even seemingly positive) relationships with those peers. Clearly, residential settings have few aspects that would promote resilient functioning aside from removal from an unsafe and unhealthy home environment.

Risk and Resilience Factors: Kin, Non-relative, and Residential Care. Several studies have highlighted the protective role of kinship care compared to other placement types. For example, in a systematic review, Washington and colleagues (2018) found that youth in kinship care tended to have fewer behavioral problems, including externalizing behaviors (which are in turn associated with juvenile delinquency; Walters, 2014) compared to youth in other types of placements. In a study of over 1,000 children, Rubin and colleagues (2008) found that youth placed in kinship care had a 32% chance of developing behavioral problems such as conduct disorder compared to youth placed in foster homes, who had a 46% chance of developing behavioral problems.

Using nationwide administrative data, Farienau and McWey (2011) examined the associations between placement type and delinquency for adolescents in long-term foster

care. They found that adolescents in kinship care had the lowest delinquency scores compared to adolescents in foster care and residential settings. They also found that adolescents in residential settings, particularly group homes, had the highest delinquency scores compared to adolescents in kinship care and foster care. Furthermore, the authors found that adolescents who developed closer emotional bonds with their caregiver were more likely to have lower delinquency scores than those not as close with their caregiver.

The authors draw on social control theory to explain these results. Social control theory posits that the strength and durability of ones' social bonds and commitment to society inhibit social deviance (Hirschi, 1969; 2017). Hirschi (2017), a key developer of this theory, argued that it is not important to consider why individuals become delinquent, but to consider why individuals do *not* become delinquent. Individuals have a greater sense of social commitment when they have more social capital, such as social bonds. The theory argues that this sense of social commitment is what prevents delinquency. Weak bonds do not *cause* delinquency, but rather create a space that allows delinquency to occur because individuals do not have the social commitment necessary to keep them from delinquent behaviors. For youth, family members are the agents most responsible for instilling a sense of social obligation and commitment and represent the most important social bonds at this time in the lifespan. Foster youth's social bonds are necessarily weakened or broken due to removal from the home and this loss of social capital can lead to youth becoming uninvested in social commitments. However, youth placed in kinship care might have less disturbed social bonds since they are placed with people known to them, are more likely to still have contact with their biological parents, and are in a more stable environment to rebuild social bonds. Youth in group homes would have the least

opportunity to re-establish social bonds because of lack of a central caregiver and instability of this placement. Social control theory places a great deal of importance on a youth's microsystem, or the people who interact with the youth every day, when predicting which youth will evince delinquent behavior.

Ryan and colleagues (2010) also used administrative data to compare the risk of delinquency between adolescents placed in kinship and foster care. Interestingly, the results were less clear-cut compared to those of Farienau and McWey (2011) and were moderated by race and gender. For African American and White females, kinship care was not associated with relative risk of delinquency. For Hispanic males and females, kinship care served as a protective factor for risk of delinquency. For African American and White males, kinship care acted as a risk factor, wherein these participants were at greater relative risk of delinquency. Thus, it seems that kinship care can be both a risk and protective factor depending on the population of interest. The authors suggest that these results reflect that the child welfare system may be misusing kinship care by treating it as a final placement rather than a temporary solution for youth (Harris & Skyles, 2008; Ryan et al., 2010). The authors call for work to turn to a broader ecological systems approach to examine how neighborhoods and culture might play a moderating role in the relationship between placement type and juvenile delinquency.

There is also limited work that specifically documents the effects of residential settings on youth development. For example, Ryan and colleagues (2008a) examined if group home placements were associated with higher risk of delinquency compared to foster home placements, which included both kinship and traditional foster home care, for youth aged 7-16 years old. The whole sample included 20,309 youth, and approximately

26% of that sample had experienced at least one group home placement. The authors utilized propensity score matching to create two groups of youth who were similar in terms of age at first placement, race, gender, placement stability, and reason for home removal, but differed on if they had experienced a group home placement or only foster care placements. Youth who had experienced at least one group home placement had a higher risk of delinquency compared to youth who had only experienced foster or kinship care placements after controlling for all the mentioned risk factors. The authors discuss two possible explanations for this result. First, as discussed above, they mentioned that peer contagion might be playing a role, which involves a feedback loop where adolescents influence one another to become more deviant than they would have been if not exposed to one another (Osgood & Briddle, 2006). Second, the authors posited that policies and procedures at group homes led to more frequent contacting of law enforcement. Foster caregivers (and particularly kin caregivers) might be less likely to involve law enforcement when a youth acts in an unacceptable manner compared to caregivers employed in group homes. For example, the authors found that youth in group homes were more likely to have verbally threatened others--but it is possible that youth in foster homes did this an equal number of times, but law enforcement was less frequently involved.

Despite the consensus among the studies discussed that residential settings act as a risk factor for the development of delinquent behaviors, Gupta and Frederiksen (2012) noted some methodological issues that limit the validity of this conclusion. They noted that youth's complicated care history, in which youth had many different placement types and potential previous experience with the juvenile justice system made findings difficult

to interpret. For example, for youth who transition between multiple placement types in short amounts of time, it is difficult to conclude how one particular type of care might be associated with an outcome. Therefore, in their study using Danish administrative data, Gupta and Frederiksen (2012) isolated the effect of placement type on delinquency by including only adolescents with a simple history, meaning that only youth who had experienced one placement type and who did not have a criminal history were included, and controlling for a wide range of covariates (including age at first placement, known diagnoses and handicaps, and parental characteristics). Results indicated that adolescents placed in residential settings were significantly more likely to exhibit criminal behavior than adolescents in foster/kinship care settings. Specifically, the study showed that compared to adolescents in foster care, adolescents in residential care were more likely to commit crime, have convictions for violent and sexual offenses and theft, and receive fines and sentences. Similar to Ryan and colleagues (2008a), Gupta and Frederiksen (2012) discussed peer contagion as a potential explanation for these group home effects.

Summary of Risk and Resilience Findings. In summary, kinship care seems to largely act as a protective factor when compared to traditional foster care and group home care. Kinship care might be protective because youth are more likely to be placed with individuals with whom they already have a social bond and because the stability of these placements might allow social bonds more opportunity to blossom. On the other hand, residential care appears to be a risk factor. To understand why, both micro- and macro-level factors need to be considered, such as the negative effects of deviant peers, the importance of continuity of cultural traditions, as well as policies related to law enforcement involvement when youth exhibit deviant behavior. Barth (2002) conducted a

review of papers related to group homes and concluded that there is no evidence to support the use of group homes in the child welfare system. They have been described as unsafe, unstable, unable to support normative and healthy development, and costly (Ryan et al., 2008a). Non-relative foster care did not appear to uniquely be a risk or protective factor throughout these studies. Although studies have shown that foster care can play a protective role for abused and/or neglected youth compared to youth who remain in an abusive home (Font & Maguire-Jack, 2013), and a risk factor for youth in the child welfare system compared to youth not in the child welfare system and who have not experienced abuse and/or neglect (English et al., 2000), no known work has shown that it plays a risk or protective role compared to other placement types.

Placement Instability and Time in Care Associated with Increased Risk for Crossover

Beyond where youth are placed, how often they change placements may also be associated with the likelihood of their crossing over from the foster care system into the juvenile justice system. Most youth do not remain in the same placement for their entire time in foster care (Akin, 2011). Connell and colleagues (2006) found that in their sample of 5,909 youth from Rhode Island, half of those youth experienced at least one placement change while in out-of-home care. They also found that placement changes tend to increase by age, with infants being least likely and adolescents most likely to change places. Youth change placements for a variety of reasons, including increased risk for harming themselves or others, foster parents not being able to care for the youth, or a sibling in a sibling group causing the whole group to move (James, 2004). Multiple placements within the foster care system may add to the stress and trauma the youth has already experienced, as their attempts to form new social bonds are thwarted (Hirschi,

2017). Not surprisingly, then, increased number of placements is associated with worse mental and behavioral outcomes, including poor school performance (Zima et al., 2000), problem behavior (Newton et al., 2000; Rubin et al., 2007), and attachment disorders (Strijker, 2008).

Furthermore, placement instability has been linked to reduced executive function skills, specifically inhibitory control, in preschool-aged youth (Pears & Fisher, 2005). In a longitudinal study, Horn and colleagues (2018) found that executive function skills in preschool-aged youth mediated the association between placement instability and externalizing problems three years later. This indicates that early executive function skills may play a critical role in the development of aggressive behaviors in youth who have had multiple placements. It is possible that placement instability impacts youth's regulatory abilities (Dozier et al., 2002). Fisher and Stoolmiller (2008) developed a model positing that stress regulation may partially mediate the association between number of caregiver transitions and youth outcomes. Youth placed in out-of-home care exhibit blunted salivary cortisol levels compared to youth who remain in their homes, meaning they tend to have low morning cortisol levels that remain low throughout the day. Fisher and Stoolmiller (2008) hypothesized in their model that increased adversity (such as increased number of caregiver transitions) may further negatively influence stress regulation systems which could in turn impact a wide array of youth outcomes (including executive function skills such as inhibitory control).

There have been several studies that have examined how placement instability is specifically related to delinquent behavior. For example, Baskin and Sommers (2011) used prospective administrative data of youth in Los Angeles to compare youth in the

Department of Children and Family Services (DCFS) and a matched control group who had been referred to DCFS but for which services were deemed unnecessary. They found that, contrary to Ryan and colleagues' (2008a) findings above, group home placement did not predict an increase in involvement in violent crimes, though it did predict likelihood of total arrests and being arrested for non-violent crimes. However, placement instability predicted an increase in involvement in violent crimes as well as the likelihood of total arrests and being arrested for non-violent crimes, independent of placement type. Therefore, it is possible that residential settings are linked to negative outcomes in part because of the instability associated with these placements.

Similarly, Ryan and Testa (2005) examined how placement instability predicted delinquency in a longitudinal study using administrative data for all youth and families involved with the Illinois child welfare and juvenile justice systems between 1995 and 2000. They noted that studies examining this relationship were limited in two ways: they often did not account for effects of maltreatment and did not disentangle how previous arrests might impacts future arrests. Therefore, they limited their sample to youth aged 11 or younger to reduce the likelihood that an arrest had previously occurred and included information about previous maltreatment in the study. They found that maltreated youth placed in out-of-home care were more than twice as likely to display delinquent behaviors than maltreated youth who remained in the home. Furthermore, placement instability further increased risk of delinquency for maltreated male, but not maltreated female, youth in out-of-home care. These findings align with those from other studies that have found that instability is related to increased risk of delinquency (Jonson-Reid & Barth, 2000; Runyan & Gould, 1985), though no previous study has found similar results

for gender interactions. Ryan and Testa (2005) provided two explanations for these results. The first is related to the concept of peer contagion, discussed above. Youth who enter the foster care system will be more exposed to deviant peers than youth who remain in the home. The authors also relate these findings back to the social control theory (Hirschi, 2017) discussed above. Removal from the home, and multiple placements, weakens youth's social bonds, attachment, and social control, which may in turn lead to increased risk of delinquency. This, however, does not explain the gender differences, except that boys may be more sensitive to placement changes. Perhaps boys do not invest in or maintain social bonds as quickly as girls do when moving to a new placement.

Ryan, Hernandez, and Hertz (2007a) extended these results by examining whether they applied to adolescents who were aging out of the child welfare system. Their sample consisted of 294 adolescents aged 16-18 who were exiting a foster care agency due to age. They followed the sample until participants were 22 years of age. Ryan and colleagues (2007a) identified 3 unique developmental trajectories of offending: nonoffenders, early onset desisters, and chronic offenders. The nonoffenders consisted of 52% of the sample and were adolescents who were not associated with any arrests. The early onset desisters made up 21% of the sample and were adolescents who were associated with offending between ages 17 and 19 but desisted after age 20. Finally, the chronic offenders were associated with frequent crime at all ages. The authors also found that placement instability was the most important predictor of offending pattern. More placement changes were associated with more serious offending trajectories. This is in line with previous work such as Loeber and colleagues (1999) who found, using three

longitudinal samples, that 90% of adolescents with five or more placement changes self-reported engaging in some type of delinquent behavior.

Placement instability has been found to be associated with younger youth's behavioral outcomes as well, such as conduct disorder and oppositional defiant disorder. For example, Osborn and colleagues (2008) found that among a group of youth aged 4-18 years, placement instability was associated with conduct disorder, as well as anxiety and depression. In a sample of five and six-year-olds, Lewis and colleagues (2007) found that youth who had experienced placement instability were, on average, more likely to be rated as oppositional compared to youth in out-of-home care who had not experienced placement instability. This work indicates that behavioral problems among youth in out-of-home care might begin developing at a young age (before the behaviors would be labeled as "delinquent"). This effect may be exacerbated by further placement changes that are a result of the initial behavioral problems. Thus, as youth experience more and more placement changes, they accumulate additional risk for increased behavioral problems, including delinquency in adolescence.

Length of time in care is related to placement instability, such that youth who spend more time in out-of-home care tend to have more placement changes (McDonald et al., 1996). Some researchers have posited that more time in care is associated with poorer outcomes only because youth are experiencing more placement changes (McDonald et al., 1996). However, youths' experiences widely vary during their time in care. Youth who spend a long time in care do not necessarily experience many placement changes, while youth who spend a short time in care might move around frequently. For example, a youth placed with a relative at a young age might spend their whole childhood in that

placement. Another youth removed from the home for a few months might move placements every few weeks during their time in care. To assume that placement instability and time in care are proxies for one another might overlook important, unique effects that each can have on risk of crossing over.

There has been limited work linking time in care to developmental outcomes, above and beyond placement instability. Work has found that length in time might work as a moderator, exacerbating the effects that risky settings might have on youth adjustment (Li, et al., 2019), meaning that spending more time in risky care settings (such as residential care) is more positively associated with increased internalizing and externalizing behaviors compared to spending less time in risky care settings. Furthermore, using data from the Minnesota Longitudinal Study of Risk and Adaptation (a prospective, longitudinal dataset), Lawrence and colleagues (2006) found that length of time in care was not associated with subsequent behavior problems, measured using the Teacher Report Form (TRF) and Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS). Particularly relevant to the current dissertation, Ryan and colleagues (2010) found that within a group of female adolescents, length of time in foster care significantly predicted later arrests. Given these few and mixed findings, the current dissertation sought to clarify the unique effects of placement instability and time in care on risk of crossing over.

Summary of Placement Instability and Time in Care Literature. In summary, previous work has consistently identified placement instability as a risk factor for a variety of negative developmental outcomes, including delinquency. This is particularly problematic because it is a normative experience for youth to frequently change

placements while in care. Length of time in care has also been positively linked with risk of delinquency, though perhaps largely because as youth spend more time in care, they tend to have more placement changes. Work is needed to better understand the how placement instability and time in care are uniquely associated with risk of crossover.

Removal Reasons: Maltreatment, Inadequate Housing, and Parent and Child Reasons

A removal can refer to youth's initial entrance into out-of-home care, when youth are removed from one placement and placed into another, or when youth who have previously been in out-of-home care exit but are then readmitted (de Carvalho & Chima, 2020). There are a variety of removal reasons, including (but not limited to) abuse, neglect, caregiver incarceration and substance abuse, inadequate housing, and youth disability, and youth are often removed from a placement for more than one reason. These different reasons might indicate additional trauma or stress on a youth that could impact developmental outcomes. The current dissertation specifically examines how removal for neglect, physical abuse, sexual abuse, inadequate housing, "parent reasons" and "child reasons" (described more thoroughly below), are associated with youth's likelihood of crossing over into the juvenile justice system.

Maltreatment: Risk may Vary by Maltreatment Type. The current dissertation examines three types of maltreatment as removal reasons: neglect, physical abuse, and sexual abuse. While in-depth definitions (in concurrence with Minnesota statutes) are provided in the Methods, brief descriptions are given here. Neglect is defined as purposeful failure of a caregiver to supply youth with food, clothing, shelter, and health, medical, or other necessary care, failure to protect a youth from dangerous actions or conditions, failure to provide appropriate supervision, failure to provide an education,

prenatal exposure to controlled substances, chronic and severe use of alcohol or other controlled substances that adversely affects youth's needs and safety, or a pattern of emotional harm inflicted on the youth that contributes to an impairment of emotional functioning (Minnesota Statute § 260E.03). Physical abuse is defined as physical injury or threatened injury that is inflicted by a caregiver by non-accidental means (Minnesota Statute § 260E.03). Lastly, sexual abuse is defined as the subjection of a youth by a person responsible for the youth's care, who has a significant relationship to the youth, or who is in a position of authority to penetration or sexual contact (Minnesota Statute § 260E.03). While removal reason for maltreatment is certainly an imperfect proxy for youth's total maltreatment experiences, many studies in the field have utilized this variable to better understand how different types of abuse and neglect might influence foster youth's outcomes (Ryan et al., 2010).

Previous work has established that abused and neglected youth are at increased risk for delinquency compared to the general population (Mersky et al., 2012). Specifically, delinquency rates are 47% - 59% higher for abused and neglected youth compared to the general population (Cho et al., 2019; Huang et al., 2012; Malvaso et al., 2018; Ryan & Testa, 2005). However, it remains unclear which types of maltreatment uniquely predict delinquency (Herrenkohl & Herrenkohl, 2009). Previous work has found that both neglect and physical abuse, compared to other types of maltreatment, are associated with delinquency, substance use and externalizing behaviors in adolescence (Taussig, 2002). Furthermore, neglect and sexual abuse have been uniquely associated with more externalizing behaviors (McWey et al., 2010) and long-term behavior problems (Simmel, 2007) in adolescence compared to removal for other types of

maltreatment. On the other hand, work has found that neglect is associated with fewer behavior problems compared to other types of abuse (Dubowitz et al., 1993, Petrenko et al., 2012). However, youth removed for neglect tend to return to their homes more slowly than youth removed for other reasons (Fernandez, 1999), indicating that neglected youth might be spending more time in care. Sexual abuse has also been found to be uniquely associated with problem behaviors above and beyond other types of maltreatment (Petrenko et al., 2012, Simmel, 2007).

There has been much work documenting the impact physical abuse might have on the development of aggressive behaviors. For example, youth removed for physical abuse have been found to have more total problem behaviors (Gramkowski et al., 2009; Tarren-Sweeney, 2008), and specifically more externalizing behaviors (Petrenko et al., 2012; Simmel, 2010) compared to youth removed for other reasons. Leveraging prospective, longitudinal data, Lansford and colleagues found that physically abused youth were rated by their mothers as being almost twice as aggressive as their non-abused peers at 16 (2002) and were at a greater risk for violent, nonviolent, and status offenses at age 21 (2007). To explain these results, the authors posited that youth who are physically abused may be more likely to attribute hostile intentions to others' behaviors, engage in aggressive retaliatory responses, and believe aggressive behaviors are morally acceptable (Lansford et al., 2002; 2007). In fact, biased cognitive functioning has been found to partially mediate the effects of physical abuse on later violent behavior (Dodge et al., 1995).

There are various other theories explaining the mechanisms behind all types of maltreatment predicting delinquent and other problem behaviors. For example, VanMeter

and colleagues (2020) found that emotion-focused coping strategies partially mediated the effect between maltreatment and externalizing behaviors. Another explanation, utilizing attachment theory, posits that maltreated youth may view their caregivers as a source of both comfort and harm, and this insecurity may lead to negative behavioral outcomes (Lansford et al., 2007).

Though many studies have linked removal for maltreatment to delinquency and aggressive behaviors, some work has not found this relationship (Perry & Price, 2018). Still other work has found that removal from home for maltreatment is associated with improved developmental outcomes compared to maltreated youth who remain in the home (Font & Maguire-Jack, 2013). Bright and Jonson-Reid (2008) found that maltreated youth who remained in the home and received in-home services were at increased risk of later offending compared to maltreated youth who were removed from the home. Given the plethora of mixed findings, it is important to clarify which, if any, types of maltreatment are uniquely associated with an increased likelihood of crossing over from the foster care system to the juvenile justice system.

Inadequate Housing: Gap in the Field. No known work has looked specifically at how inadequate housing as a removal reason impacts youth outcomes. Inadequate housing makes up a relatively small percentage of reasons for removal for Minnesotan youth in care. In 2020, only 58 removals were because of inadequate housing (Minnesota DHS, 2021). Though not much is known about how this removal reason impacts development, there has been ample work examining the impacts of homelessness and housing instability on developmental outcomes, including outcomes related to delinquency. For example, prior work has found that youth homelessness is associated

with increased risk of delinquent activity (Brennan et al. 1978; Fielding & Forchuk, 2013; McCarthy & Hagan 1992; Schwartz et al, 2008; Whitbeck & Hoyt, 1999), drug and alcohol use, and externalizing behaviors (Votta & Manion, 2004) and housing instability has been linked to higher rates of problematic substance use and crime/violence in youth (Smith et al., 2017). It is important to examine how removal for inadequate housing might uniquely impact risk for crossover because this is one of the few removal reasons that does not implicate a lack of parental willingness or ability to care for the youth, but rather signals a severe lack of resources or opportunities to house the family, and requires the consideration of societal issues (e.g., availability of equal and affordable housing) that may be impacting youth's abilities to remain with their families.

Parent Reasons: Removal Because of Parental Substance Use, Incarceration, or Disability. Youth are often removed from the home because of something attributable to their parents, besides abuse and neglect. Examples can include parents' inabilities to care for the youth, relinquishment of parental rights, parental substance use, and parental incarceration. There has been little work examining most of these reasons for removal, but the extant known work is described below, focusing on removal because of parental substance use, incarceration, and disability.

As mentioned above, Minnesota has reported a steady uptick in youth removed from the home because of parental drug use since 2016 (Minnesota DHS, 2021). It is well established that youth who live with parents who abuse substances are at increased risk for developing behaviors related to delinquency, including aggression, conduct disorder (CD), oppositional defiant disorder (ODD), truancy, and property destruction (Barnow et al., 2002, Calhoun et al., 2015; Carbonneau et al., 1998; Gabel & Shindledecker, 1993;

Grekin et al., 2005). Using administrative data from Los Angeles, Herz and colleagues (2010) found that 72% of the crossover youth in their sample had parents with history of substance abuse. It is possible that youth with substance abusing parents are at increased risk of crossing over because parents are more likely to use negative and harsh parenting techniques in response to youth's behavior (Stanger et al., 2004) and substance use in parents often co-occurs with neglect (Vanderploeg et al., 2007).

Not only can youth be removed from the home due to parental substance use, but also because of parental incarceration. Following legislation and subsequent enforcement termed the "War on Drugs", there was an increase in the harshness of penalties for drug-related crimes. This resulted in a massive increase in drug-related arrests since the 1980s (a shocking 1,216% increase in state prison population for drug offenses just between 1980 – 2008; Pew Research Foundation, 2022). Though this has lessened somewhat in the most recent years, more than 171,000 Americans were incarcerated for a drug-related offense in 2019 (Pew Research Foundation, 2022). Of course, parents are also incarcerated for reasons beyond substance use.

Youth who have an incarcerated parent are more likely to have conduct disorder (CD) and exhibit delinquent behaviors compared to their peers who do not have an incarcerated parent (Murray & Murray, 2010). Studies have documented that teachers report more negative and disruptive and less prosocial behaviors in the classroom for youth with incarcerated parents compared to youth without incarcerated parents (Dallaire et al., 2015). Specifically in male adolescents, parental incarceration has been correlated with an increase in theft (Murray et al., 2012; Roettger et al., 2011). Herz and colleagues (2010) found that 36% of crossover youth in their Los Angeles foster care sample

(discussed in the previous paragraph) also had a parent with a history of criminal behavior. Calhoun and colleagues (2015) posit that perhaps this relationship can be explained by the isolation that comes along with the stigma associated with parental incarceration which leads to behavioral problems, or because youth often self-report stress related to assuming the role of caregiver for themselves, siblings, and their non-incarcerated parent (Nesmith & Ruhland, 2008).

While youth may certainly benefit from removal from a parent who is using substances or is dangerous and abusive, parental incarceration may result in poverty and lack of resources that further negatively impacts the youth (Calhoun et al., 2015). For example, whether the incarcerated parent was living with the youth or not, they were likely contributing to the youth's financial stability. While incarcerated, and after, the parent might not be able to continue financially supporting the youth and family due to difficulty securing employment. Therefore, the effects of the incarceration may extend beyond the duration of the incarceration itself.

There has also been ample work examining parental disability as a removal reason. Work has shown that individuals with disabilities (including learning, developmental, physical, behavioral, emotional, and sensory disabilities) are just as likely as individuals without disabilities to have children (Horner-Johnson et al., 2016; Kaplan et al., 2019). However, parents with disabilities are more likely to be involved with the child welfare system than parents without disabilities (Kaplan et al., 2019; LaLiberte et al., 2017; Lightfoot & DeZelar, 2016). Furthermore, parents with disabilities are more likely to have their parental rights terminated compared to parents without disabilities (Lightfoot et al., 2010).

While it is known that youth do get removed from the home because of parental disability, work has emphasized that parental disability status should not be used as a reason for removal (DeZelar & Lightfoot, 2018). This is an issue federal legislators have taken up as well. For example, in the current session Rep. Jim Langevin (D-RI-02) is introducing a bill that aims to improve parental rights of parents with disabilities and help prevent unwarranted parent-child separations. Parents with disabilities might need proper accommodations to fully measure their parental abilities and may require different resources compared to non-disabled parents. The child welfare system needs to work to accommodate the needs of these parents to avoid unnecessary separations.

Child Reasons: Relationship between Externalizing Problems and Placement Instability may Impact Risk. There has been even less work on removal from the home for child reasons. In the current dissertation, child reasons for removal can include child physical or mental health, child disability, child drug or alcohol use, and child delinquency. It is important to note that while this category is titled “child reason” for removal, it does not intend to place blame on the child for that removal, but rather indicates that the caregiver was not able to provide care for the child because of one of the above reasons. Limited work has indicated that youth who are placed in care because of behavior problems (e.g., delinquency or drug and alcohol use) are associated with even greater externalizing problems when they exit care (Vanschoonlandt et al., 2013). This highlights a pernicious cycle in out-of-home care in which placement instability leads to behavior problems which then leads to more placement instability. Thus, each time a youth moves in care they are more at risk for behavioral problems and those problems put them at risk for more moves. This, in combination with child reasons that are directly

related to delinquent behaviors (such as delinquency and substance use), may play an important role in understanding foster youths' risk of crossing over into the juvenile justice system.

Summary. There has been limited work examining the association between reasons for removal and risk of crossover, and no known work has examined the unique effect of multiple factors on risk of crossover. Previous work has shown that removal for all types of abuse and neglect are associated with risk of crossover, and physical abuse has been shown to uniquely effect development of externalizing disorders and delinquency. No known work has examined the impact of removal for inadequate housing on developmental outcomes, but work has shown that homelessness and unstable housing is linked with delinquency. Removal for parental substance use and incarceration have been linked with increased risk of delinquency. Lastly, there may be a bi-directional relationship between youth's displays of externalizing behaviors and placement instability, in which youth are removed for problem behaviors but the removal itself increases problem behaviors.

CPS Involvement: Indicator of Maltreatment and Trauma

Child Protective Services (CPS) often plays a key role in cases of alleged maltreatment. When there is suspected maltreatment, reports are made to CPS. CPS then screens these reports to determine if further steps need to be taken to protect youth. If so, CPS then conducts assessments of youth's current safety and potential for future risk. In Minnesota, this assessment informs if CPS follows a Family Investigation or Family Assessment response, known in other states as a differential response. For families to be assigned to the Family Investigative track, there must be considerable risk of harm to the

youth (Minnesota DHS, 2021). In 2020, 62% of Minnesota's child maltreatment reports were assigned to the Family Assessment Track response (Minnesota DHS, 2021). Cases including allegations of sexual abuse or substantial child endangerment (including abandonment, homicide, felony assault, and egregious harm) are required by law to be assigned to the Family Investigative Track (Minnesota DHS, 2021). An investigation is then conducted to determine evidence for maltreatment. If CPS determines that it is not safe for youth to remain in their homes and a safety plan to maintain youth in their homes cannot be made, they will be removed and placed in out-of-home care. Families are assigned to the Family Assessment track if CPS determines that there is not substantial risk of harm to the youth. This track does not establish if maltreatment occurred, but rather focuses on improving youths' safety and preventing future maltreatment by providing resources to families.

Not only has maltreatment been associated with negative developmental outcomes such as aggression and delinquency (Berlin et al., 2011; Cho et. al., 2019), but involvement with CPS in and of itself may lead to negative developmental outcomes, above and beyond maltreatment experienced. CPS can be a source of trauma, especially for Black, Brown, and Indigenous families and communities, who have disproportionately more contact with this system compared to White families. For example, using a large, administrative dataset from Los Angeles, Bogie and colleagues (2011) found that youth with a greater amount of CPS involvement, including more investigations and more services provided, were at greater risk of delinquency than youth with a fewer amount of CPS involvement, particularly for African American youth.

The current dissertation included CPS involvement as a covariate to better understand how removal for different types of maltreatment might be related to risk for delinquency, above and beyond involvement with CPS. CPS involvement is defined in detail below (in the Methods chapter) and included instances of both substantiated and unsubstantiated cases of abuse and neglect. The literature indicates that substantiated and unsubstantiated cases of maltreatment predict similar patterns of risk (Kohl et al., 2009) and specifically, work has found that substantiation of maltreatment is not associated with risk of delinquency (Cho et al., 2019). Within the current dissertation, CPS involvement includes both substantiated and unsubstantiated reports of maltreatment, thus including reports that went on the Family Investigative or Family Assessment Tracks or were later screened out altogether.

School Mobility: Developmental Timing and Youth Outcomes

When youth change placements, they might also experience a transition between schools. The Fostering Connections to Success and Increasing Adoptions Act ("Fostering Connections"; H.R. 6893/P.L. 110-351*)* is federal legislation that states that youth in care need to remain in their same school when possible, and when a move is necessary, ensures that youth be transferred promptly to a new school and provides support to assist with school-related transportation costs. Despite this legislation, youth in care still often change schools due to placement, or due to other reasons, such as family crises.

Work with general populations has shown the negative effects school mobility can have on youth (Grigg, 2012; Herbers et al., 2012; Mehana & Reynolds, 2004). Youth who move may miss out on important instruction that makes them fall behind compared to their peers (Mehana & Reynolds, 2004; Pears et al., 2014). Furthermore, students who

move may not have important records that are critical for schools to determine and provide the special instruction and additional services students may need (Grigg, 2012). Lastly, school changes disrupt social relationships between peers and with teachers that are critical in many youth's lives (Sullivan et al., 2010).

Pears and colleagues (2015) used prospective, longitudinal data to examine foster care youth's school mobility and how that influenced developmental outcomes. Over the course of two years, 69% of the youth in foster care moved schools at least one time. Youth in foster care were more likely to change schools, move during the school year, and move into a new school district compared to youth in normative care situations. School changes that take place in the middle of the academic year might be particularly disruptive compared to changes that happen between academic years (Grigg, 2012). Results also indicated that there was an association between number of moves and later social emotional competence, though youth who had strong early learning skills were protected from this effect. These results are in line with another study that found that school mobility among foster care students negatively impacts adjustment, such as academic achievement (Clemens et al., 2018). Unfortunately, no known work has examined how school mobility may predict juvenile delinquency specifically. However, because school adjustment, academic achievement, and educational attainment (such as attaining a high school degree) have been found to be predictive of juvenile and adult criminal behavior (Webster et al., 2006), it is possible that school mobility might also be directly associated with juvenile delinquency.

The timing of school mobility may also be impactful to youth wellbeing. However, conflicting results make this relationship unclear. Some researchers have found

that school mobility in early elementary grades is more detrimental than school mobility in later grades (Astone & McLanahan, 1994; Heinlein & Shinn, 2000; Mehana & Reynolds, 2004). These authors proposed that it is during these early school years that youth are gaining the academic foundation they need for all future learning. On the other hand, other researchers have found that later school mobility is more detrimental to youth wellbeing (Herbers et al., 2013; Pribesh & Downey, 1999; Rumberger & Larson, 1998; Swanson & Schneider, 1999). Particularly relevant to the current study, Herbers and colleagues (2013), using data from the Chicago Longitudinal Study, found that individuals who experienced greater school mobility in grades 4-8 were more likely to experience criminal arrests in adulthood compared to individuals who moved at other times. It is possible that it is harder for older students to catch up to their classmates because curricula become more complex and varying as youth advance in grades. Also, peer relationships become increasingly important as youth develop (Brown & Larson, 2009) and disruptions in those relationships could have a greater impact on youth wellbeing. Furthermore, evidence suggests that mobility later in school might reflect greater detriments to wellbeing as school changes accumulate over time, causing repeated disruptions to social connections and the academic environment (Gruman et al., 2008; Herbers et al., 2013). The current study aims to clarify if school mobility during or before adolescence, or both, increases risk for crossing over.

Summary of Literature Related to Placement Characteristics and Risk of Crossover

There has been an abundance of work examining how placement characteristics are related to risk of delinquency. Much of this work focuses on how placement type increases or decreases risk. The majority of work concedes that kinship care is associated

with decreased risk of delinquency (protective factor) and residential care is associated with increased risk of delinquency (risk factor), but little work has found non-relative care to be associated with this outcome. Furthermore, much work has shown that placement instability is associated with increased risk for delinquency and crossover, such that the more placements youth have in care the more likely they are to crossover. Limited work has examined removal reasons beyond removal for maltreatment, which has shown mixed results when examining how individual types of abuse are associated with crossover. Additionally, little work has examined how CPS involvement may be associated with risk of delinquency, though it is hypothesized that greater involvement will be associated with greater risk because it is indicative of more frequent experiences of maltreatment and simply interacting with this system can be traumatic for families. Lastly, though no work has examined if school mobility is associated with crossover, work has shown that school mobility during adolescence is particularly detrimental to youth wellbeing. It is important to note that while many risk factors have been identified in prior research, very few placement characteristics have been found to be associated with reduced risk of crossover. The majority of work overlooks utilizing a resilience approach when examining outcomes for youth in out-of-home care.

Youth Characteristics and Risk of Crossover

Race: Disproportionalities in System Representation and Risk for Crossover for Minority Youth

Utilizing an ecological systems theory approach that focuses on the importance of the macrosystem, it is important to discuss the existence of racial disproportionalities

within the child welfare and juvenile justice systems (Kamalu et al., 2010) that directly influence youth outcomes. There is an extreme overrepresentation of minority youth in both the child welfare and juvenile justice systems (Courtney & Skyles, 2003; Leiber & Fox, 2005; Minnesota DHS, 2021; Needell et al., 2003; Rawal et al., 2004; Ryan et al., 2008b). In Minnesota, American Indian youth were 16.4 times more likely and Black youth were 2.4 times more likely to experience placement in care compared to White youth in 2020 (Minnesota DHS, 2021). As discussed above, despite an overrepresentation of youth of color in foster care, the majority of foster caregivers are White (Myers et al., 2018). Youth might find it challenging to feel welcome in families that have major cultural differences from those in their home communities.

Furthermore, racial disproportionalities within the child welfare system may be directly related to racial disproportionalities within the juvenile justice system. For example, Ryan and colleagues (2007b) found that in Los Angeles, while youth from the child welfare system made up an average of 7% of juvenile arrests each year, it accounted for 14% of African American youth entering into the juvenile justice system. Ryan and colleagues (2008b) found that African American youth in out-of-home care were 64% more likely to be arrested compared to White youth in care. African American youth are also more likely to be placed in detention and less likely to receive any type of mental health service while under arrest compared to White youth (Leiber & Fox, 2005; Rawal et al., 2004). African American and Hispanic youth have also been found to be less likely to have their cases dismissed compared to White youth (Ryan et al., 2007a).

In sum, these studies indicate the presence of biases in the child welfare and juvenile justice systems. Youth of color are disproportionately removed from their homes

by child protective services and placed into out-of-home care, which consists largely of White caregivers (Myers et al., 2018). Youth of color may be more likely to be removed from the home because of stereotypes, biases, or because of an ignorance or misunderstanding of cultural norms (Derezotes & Poertner, 2005; Drake et al., 2011). Once these youth are placed into the child welfare systems, they are at an even greater risk of entering into the juvenile justice system. The race effects seen in these studies may in part be explained by attributional stereotypes (Ryan et al., 2007b). For example, Bridges and Steen (1998) found that court officials often portrayed more negative attitudes and personality traits toward minority youth (and specifically African American youth) compared to White youth, even when they had identical offenses. The court officials were more likely to explain the White youths' offenses by discussing environmental factors. The authors conclude that court officials may perceive African American youth as more dangerous and are therefore more likely to deliver sentences, and for those sentences to be more serious, when African American youth appear in court. While there is some work examining the mechanisms explaining disproportionalities in these systems for African American and Black youth, there is no known similar work for American Indian youth, which is particularly problematic given how at-risk these youth are for entering into the child welfare system. While the current dissertation cannot examine mechanisms explaining increased risk, it will establish if youth's race/ethcnity is related to their likelihood of crossover, which can inform a discussion about the potential impacts of racism within (and beyond) these systems on youth wellbeing.

Sex: Male Youth at Increased Risk for Crossover

Historically, males have been more represented in the juvenile justice system than females (de Carvalho & Chima, 2020). In 2015, females accounted for only 29% of youth arrests in the United States, and the majority of those arrests were for non-violent crimes (Ehrmann et al., 2019). Males are also more likely than females to be diagnosed with externalizing disorders in childhood (Habersaat et al., 2018). In fact, males are three times more likely than females to be diagnosed with oppositional-defiant disorder (ODD), conduct disorder (CD), and attention-deficit/hyperactivity disorder (ADHD; Beauchaine et al., 2009; Copeland et al., 2011; Egger & Angold, 2006). This is particularly important because these externalizing disorders often continue over the life course, increasing risk for developing disorders such as antisocial personality disorder and substance use disorders, which are associated with increased risk for criminal behaviors (Martel et al., 2009; Schaeffer et al., 2003).

The majority of studies examining out-of-home characteristics predicting crossover risk focus on an entirely male sample (de Carvalho & Chima, 2020). However, females are still at risk for delinquency. Over the past couple of decades, there has been a large uptick in involvement of females in the juvenile justice system (de Carvalho & Chima, 2020; Sherman & Balck, 2015). Furthermore, there is an overrepresentation of females of color among this group of females (Marshall & Haight, 2014). In 2013, African American females were three times more likely to be referred for delinquency offenses and 20% more likely to be detained compared to White females (Puzzanchera & Hockenberry, 2015).

There are a variety of theories that suggest explanations of these sex differences in prevalence of externalizing behaviors and delinquency. Some researchers have

discussed the relevance of measurement issues in misunderstanding differences in externalizing behaviors. Many researchers utilize standardized scores to understand youth's problem behavior, such as Achenbach's Child Behavior Checklist (CBCL) and Teacher Report Form (TRF). Mayes and colleagues (2020) posited that when raw scores are standardized based on general population sex and age specific norms, sex differences are masked. Therefore, a male and female might have an equivalent score after standardization, but those scores are not actually equivalent. Furthermore, some researchers have posited that externalizing behaviors are displayed differently by young males and females, and these measures might not accurately reflect those differences. For example, males might display more physical regression and girl more relational aggression, ultimately leading to boys exhibiting more behaviors in line with CD and ODD (Atherton et al., 2018; Heinshaw & Beauchaine, 2015).

However, while these measurements issues are relevant, it does not explain the overrepresentation of males entering the juvenile justice system. It is possible that these differences can be partially explained by gender socialization. Caregivers, teachers, peers, and society as a whole tend to treat females and males differently based on a culture's gender expectations and norms. For example, mothers have been found to use more negative parenting with sons than daughters, and negative parenting has been linked to increased externalizing behaviors in males (Barnett & Scaramella, 2013). Furthermore, research has shown that caregivers respond differently to toddlers' displays of emotions based on sex, with more supportive and fewer punitive responses to males' displays of anger compared to females' (Chaplin et al., 2010).

Other researchers have suggested that societal conceptions of masculinity and femininity, which are critical to the identity of many adolescents, may contribute to differences in externalizing and delinquent behaviors observed between sexes (Rosenfield, 2000). In a large, national sample of adolescents, Augustyn and McGloin (2011) found that unsupervised time with peers increased likelihood of delinquency for males but not females. They posited that this finding can be explained by the persistent pressure of the masculine identity and male culture, which may lead to males engaging in more violent and illegal activities while they are spending time with friends without an adult present compared to females. To attain male group membership, males might have to engage in aggressive behaviors, risk-taking, and toughness, whereas these traits and behaviors are not as valued amongst most female peer groups (Augustyn & McGloin, 2011; Leaper & Friedman, 2007; Perry & Pauletti, 2011). These group characteristics and expectations might lead to engaging in delinquent activities as a peer group or normalize behaviors that lead to individual delinquency.

Other researchers have employed more biological theories to explain these sex differences. In one example, Beauchaine and colleagues (2008) tested a hypothesis about sex differences in autonomic nervous system functioning in male and female youth (age 8 - 12) with conduct problems. They found autonomic correlates of conduct problems and aggression in males but not females, suggesting differences in etiological mechanisms for externalizing behaviors in boys and girls. Specifically, they found reduced sympathetic nervous system- (marked by the cardiac pre-ejection period; PEP) and parasympathetic nervous system- (marked by respiratory sinus arrythmia; RSA) linked cardiac activity for males, which has been found to be related to impulsivity and emotion dysregulation.

Ultimately, these findings suggest that differences in the autonomic nervous system might play an important role in explaining why males display more delinquent behaviors than females.

Youth with Disabilities (Special Education Status): Overrepresentation in the Foster and Juvenile Justice Systems.

Youth with disabilities (including emotional, behavioral, learning, sensory, and physical disabilities) make a disproportionately large subpopulation of youth in care. Studies have found that approximately 40-47% of youth in care have a disability, a much larger percentage than in the general population (approximately 5%; Blakeslee et al., 2013; Powers et al., 2012). Abundant work has established that youth with disabilities are at increased risk of abuse and neglect (Jonson-Reid et al., 2004; Sullivan & Knutson, 2000; Vig & Kaminer, 2002). Parents of youth with disabilities may experience increased stress, frustrations, and feelings of isolation that ultimately leads to maltreatment (Lee et al., 2018; Strickler, 2001), which might result in a home removal. The high prevalence of youth in care with a disability might also be related to parental substance use, educational barriers, and lack of resources (Osgood et al., 2010). Furthermore, work has found that maltreated youth with disabilities are more likely to be in out-of-home care than maltreated youth without disabilities, indicating that youth with disabilities are more likely to be relinquished to the child welfare system (Lightfoot et al., 2011).

Moreover, youth with disabilities are more likely to appear in juvenile court (Kincaid, 2016) and are 2.5 – 4.5 times more likely to be incarcerated compared to non-disabled youth (Leone & Cutting, 2004). Youth with disabilities are more likely to be placed in residential settings (Schmidt et al., 2013), experience more placement

instability, and lack permanency plans and kinship placements compared to non-disabled youth (Slayter, 2016). Youth with disabilities are also more likely to stay in foster care for longer amounts of time than youth without disabilities, perhaps because of their more intensive need for services, a lack of availability of these services, and caregivers' inabilities to meet those needs (Schmidt et al., 2013). Increased time in care, specifically residential care, might play a role in increasing risk of crossover for youth with disabilities. The current dissertation included special education status as a proxy for disability, which has consistently been done in previous work in the field (Geenen & Powers, 2006; Lambros et al., 2016).

Summary of Literature Related to Youth Characteristics and Risk of Crossover

This section highlights the role the macrosystem has on individual outcomes and supports the need for restructuring Bronfenbrenner's original ecological theory (1979; 1994) to bring the macrosystem into the inner circle with the microsystem (thus creating the m(ai)crosystem; Rogers et al., 2021). There is an overrepresentation of racial and ethnic minority youth in both the child welfare and juvenile justice systems, and this can be seen specifically for Black and American Indian youth in Minnesota. Furthermore, males are more likely to crossover, perhaps in part because of gender roles and norms supporting the development and display of externalizing behaviors among male children and adolescents. Lastly, youth with disabilities are overrepresented in both the child welfare and juvenile justice systems. These youth may require more care from biological and foster parents, leading to an initial home removal and subsequent placement instability.

Using LCA to Examine Patterns of Risk Among Foster Youth

It is possible that accumulation of multiple risky placements (placement characteristics that are individually associated with increased risk of juvenile delinquency) is associated with a greater chance of crossing over from the foster care system into the juvenile justice system. Youth who are exposed to multiple types of adverse experiences are more likely to develop negative outcomes. For example, Rebbe and colleagues (2017) used latent class analysis to identify three subgroups of adolescents who had just aged out of the foster care system (complex adversity, environmental adversity, and lower adversity) and differences among these groups were found in criminal behaviors in adulthood.

Using the same data source as the current dissertation, Waid and colleagues (2021) conducted a latent class analysis to identify patterns of risk among Minnesotan families experiencing child maltreatment re-report or recurrence. For both the re-reporting and recurrence models, three classes fit the data best. The re-reporting model classes were characterized by “Few Identified Challenges”, “Mental Health and Domestic Violence Challenges”, and “Substance Abuse, Domestic Violence, Mental Health, and Parenting Challenges.” This study emphasized the complex nature of risk and provides valuable insight into predictors maltreated youths experience in care. However, no study has examined whether multiple placement characteristics might accumulate to increase youth’s risk for crossing over into the juvenile justice system. The current dissertation will conduct exploratory analyses to examine if there are latent classes of risk among youth in out-of-home care.

Placement Characteristics Associated with Timing of Crossover

The majority of work in this field has focused on examining involvement with the juvenile justice system as the outcome of interest. However, it is also important to understand how placement characteristics might impact the timing of crossover. One of the most robust predictors for ongoing criminal behavior is age at first arrest (Eddy et al., 2002; Doherty & Bacon, 2019; Piquero, 2018). In fact, youth who experience arrests before age 14 are two-to-three times more likely to become chronic offenders as adults than youth who are arrested after age 14 (McGee & Farrington, 2019). Furthermore, there has been limited work showing that youth who are arrested before age 14 develop more serious criminal behaviors over time, starting with minor property crimes and progressing to more serious offenses. Contextual variables on individual, family, and community levels are predictive of age of first arrest (Alltucker et al., 2006). For example, Alltucker and colleagues (2006) found that youth who had experience with the foster care system were four times more likely to enter into the juvenile justice system before 14 compared to youth with no foster care experience.

In a landmark paper, Moffitt (1993) proposed two developmental trajectories of antisocial behavior: adolescence-limited and life-course-persistent. According to Moffitt's theory, most youth engage in antisocial behaviors that begin and conclude in adolescence (adolescence-limited). A smaller subsample of youth exhibit antisocial and delinquent behaviors over the course of the lifespan (life-course-persistent). Similar theories in criminology posit three trajectories of antisocial behavior: life-course-persistent, adolescence-limited, and late-onset (in which individuals first offense occurred after age 20; Jolliffe et al., 2017a; 2017b). Research based on these theories have found

that youth who first offend at earlier ages are more likely to continue offending into adulthood (Assink et al., 2015; Jolliffe et al., 2017b).

Therefore, it is essential to understand how to delay initial delinquency to decrease youth's likelihood of becoming lifelong offenders. However, only one known study has examined how specific aspects of out-of-home care might influence risk of early crossover. Cho and colleagues (2019) utilized a large, administrative dataset from Minnesota (from the same data source as the current dissertation) to examine what factors predicted delinquency before age 14 among a sample of maltreated youth. They found that youth who had emotional and behavioral disorders, had experienced out-of-school suspensions, had three or more allegations of maltreatment, and identified as male (compared to female) or Hispanic, American Indian, or Black (compared to white) were more likely to offend before age 14. Though this work integrated a timing aspect by including an outcome variable that indicated if the youth crossed over before age 14, this is a limited approach that does not completely examine how placement characteristics are associated with the timing of crossover and specifically if a factor is associated with earlier or later crossover. Increased knowledge regarding the effects of placement characteristics on the developmental trajectory leading up to youth's first arrests is necessary to better understand how the structure and policies of the child welfare system may be contributing to early arrests and eventually adult criminality. The current dissertation will fill this gap in the literature by examining how placement characteristics are associated with timing of crossover from out-of-home care into the juvenile justice system for the first time.

Methodological Concern: The Multiverse

A common limitation of papers in the youth crossover literature is a lack of detail describing coding and cutoff decisions. Even some of the papers that comment on methodological concerns (Baskin & Sommers, 2010; Gupta and Frederiksen, 2012; Ryan & Testa, 2005), do not thoroughly discuss how coding and information inclusion decisions are made. It most of these studies it is implied, though not explicitly stated, that crossover youths' experiences following their crossover are not included in predicting crossover. While this is generally necessary to establish temporal precedence, it creates an issue of unequal design. Because crossover youth, who on average crossover by age 13, are being compared to non-crossover youth, non-crossover youth may appear to have more out-of-home experiences because more of their experiences are being coded compared to crossover youth. This unequal design creates potential for misleading results and implications. For example, more days in care and placement instability might *appear* to be associated with a decreased risk of crossover simply because non-crossover youth continue to be followed until age 18, thus allowing them to accumulate more days in care.

Throughout a research study, researchers make a series of decisions regarding coding, data transformations, and analytic strategies that can greatly impact the outcome of a study. For instance, Silberzahn and colleagues (2018) requested that 29 teams of scientists answer the same research question (which was: Do referees' use of red cards differ between players based on race?) using the same dataset. Each of the teams made different statistical choices, which resulted in 31% of the teams finding a positive significant effect and 69% finding a null effect. This emphasizes the importance of

considering multiple outcomes based on different decisions during the analysis process. In this example, interpreting any one of the teams' results in isolation from the others would not be an appropriate understanding of the findings as a whole (Macchia & Whillans, 2021). This type of issue is not an uncommon issue for researchers to encounter while planning and executing analyses.

The above example demonstrates the multiverse approach. This approach involves systematically conducting analyses that answer the same research question, but differ in decisions leading up to that answer, such as decisions about coding, data transformations, analytic techniques, or other data-related decisions (Steegen et al., 2016). This method has become increasingly popular, as researchers seek to align their work with open science practices (Modecki et al., 2020). The multiverse approach reduces the likelihood of a researcher making a particular set of analytical decisions because of the results it produces (Simonsohn et al., 2014) and rather provides transparency by reporting all findings across different scenarios. Furthermore, this approach acknowledges that published findings are the results of a series of specific decisions and a change in any decision might impact the findings (Steegen et al., 2016). This highlights how fragile research findings can be, and when a study has a variety of plausible decisions along the way (as does the current dissertation), these decisions can have an impactful role on the findings. The multiverse approach can help expose how, even small, decisions, can alter results, help establish the robustness of the results, and more confidently determine the direction of effects (Macchia & Whillans, 2021; Modecki et al., 2020).

There have been some criticisms of the multiverse approach. For example, Krypotos and colleagues (2022) commented that the approach can be time consuming, might be used as an excuse to neglect formal theorizing, and it may be difficult for the researcher to decide what should be included in the multiverse, as there are an almost infinite number of options. Despite these limitations, this approach is still worthwhile and creates a more transparent, robust set of results that while may not be perfect, is certainly an improvement.

Because there was no theoretical guidance from the literature or precedence on how to approach coding and information inclusion decisions in the current dissertation, a multiverse approach was implemented. Choosing only one way to approach coding and information inclusion was an arbitrary decision that could have a great impact on the results. Particularly because the current dissertation aims to have policy implications that could impact youth and their families, it is essential to be both transparent and rigorous in the analytic approach to improve confidence in the results and subsequent recommendations. The multiverse approach was utilized in the current dissertation by choosing three different cutoff criteria while coding which results in three separate datasets (discussed in further details in the Methods chapter). Analyses were then conducted across all datasets, presented in their entirety, and will be interpreted in the context of (consistent and inconsistent) findings across the datasets. This approach was utilized in the current dissertation to establish more robust findings and to demonstrate how this method can be used when analyzing state administrative datasets. Because these datasets are often what is used to conduct research that influences practice and policy, it is important that findings not be based off a series of arbitrary decisions.

The Current Study

Minnesota Child Welfare System: Context for Replication and Extension of Previous Work

Though previous work has examined how several placement characteristics are associated with the likelihood for youth in out-of-home care to cross over into the juvenile justice system, it is important to replicate these results in an independent sample (Maxwell et al., 2015). Most of the studies reviewed use administrative data from a variety of locations, and many of the samples are specifically from Los Angeles and Chicago. It is important to replicate these studies using a sample from Minnesota, which has a variety of unique features to its child welfare system and population. This section will discuss unique aspects of Minnesota's child welfare system, and specifically make comparisons with states in which much of the previous work discussed has been conducted (i.e., California and Illinois). It is vital for scientists to replicate results in the context of specific state systems to strengthen confidence in the accuracy and generalizability of findings, particularly when research findings have direct and influential implications for public policy.

Child welfare systems differ in their funding and administrative mechanisms around the nation. Minnesota is one of nine states (which includes California but not Illinois) that has a state-funded but county-administered child welfare system. Work with the US Department of Health and Human Services and the Office of the Assistant Secretary for Planning and Evaluation (2003) has found that agencies with state-administered systems who also have strong county structures have more expansive and more flexible investigations, report running into fewer obstacles related to preparing

materials for case and court records, and have more consistent procedures when conducting alternative responses compared to county-administered systems.

Another difference that varies among states is mandatory reporting laws. In Minnesota, mandatory reporters include a variety of professionals, such as individuals employed in social services, psychiatric treatment, education, childcare, law enforcement, and hospital administration (Minnesota Statute §626.556). While California and Illinois (and many other states) have similar laws, some states (such as Texas and Kentucky) mandate that all individuals, regardless of profession, to report suspected child abuse and neglect to authorities.

After reports are made to CPS, those reports are screened-in or screened-out. Minnesota has one of the highest rates of screened-out reports in the nation (with only six states having higher screen out rates in 2020, US Department of Health & Human Services Administration for Children and Families (DHS ACF), 2022). In 2020, 64.8% of all maltreatment reports in Minnesota were screened-out, much higher than California's (44.5%) and the national (45.8%) percentages (Illinois did not report their screen out rate in the most recent report; DHS ACF, 2022). According to the Minnesota DHS (2022), nine out of 10 reports were screened out because they did not meet the statutory definitions of maltreatment. In 2005, which is during the current study timeframe, the Minnesota Parent Support Outreach Program (PSOP), was created to provide voluntary supportive services to families reported for maltreatment who were screened out by CPS. It began as a program only for families with a child aged 5 or younger but later expanded to families with school-aged children in 2008 (Loman et al., 2009). These services were intended to decrease the likelihood of the families having future interactions with CPS.

Work with a Minnesota population between 2014-2017 (also within the current study timeframe) indicates that needing and receiving services lessened families' likelihood of subsequent involvement in the child welfare system, whereas needing and *not* receiving services increased families' likelihood of subsequent involvement with the child welfare system (Piescher et al., in preparation). Though more families are screened out in Minnesota compared to other states, perhaps these families are still receiving resources and supports to meet their needs.

Minnesota, like many states, has an alternative response system to respond to all screened-in cases which includes three response types: family assessment, family investigative, or facility investigative responses. Family assessment responses utilize a strengths-based approach and do not determine whether maltreatment occurred, but rather assesses if any services are needed to reduce risk for future maltreatment. Investigative responses, on the other hand, involve an investigation with the goal of determining if abuse or neglect occurred. Responses alleging sexual abuse or substantial child endangerment require an investigative response by law (MN DHS, 2021). Minnesota is leading the nation in percentage of reports going to the Family Assessment (or Alternative) path, with 61.7% of screened-in reports going on this path in Minnesota, compared to 13.19% of all the screened-in reports in the nation going on this path in 2020 (DHS ACF, 2022).

Minnesota had a lower rate of screened-in reports than many other states, and lower than the national average, in 2020, with 27.9 per 1,000 children in Minnesota receiving either an investigative or alternative response, compared to 34.9 per 1,000 children in California, 50.7 per 1,000 children in Illinois and 42.9 per 1,000 children in the nation

(DHS ACF, 2022). Additionally, it had a lower rate of substantiated maltreatment, with 5.1 per 1,000 children in Minnesota having experienced substantiated maltreatment in 2020 compared to the national rate of 8.4 per 1,000 children (DHS ACF, 2022). It is possible that this difference exists because many reports are getting screened-out in Minnesota that wouldn't in other states or are being put on the Family Assessment track and are thus not being substantiated.

Additionally, though rates of maltreatment may appear better in Minnesota compared to other states, this is not true for all youth. Minnesota has some of the largest disproportionalities in child victimization rates for Black, Multiracial, and American Indian youth. In Minnesota in 2020, 26.8 per 1,000 American Indian/Alaska Native youth, 8.3 per 1,000 Black youth, and 17.3 per 1,000 Multiracial youth experienced substantiated child maltreatment compared to 2.9 per 1,000 white youth (DHS ACF, 2022). Minnesota has particularly large disproportionalities for American Indian youth compared to other states, with only 5 other states having greater disproportionalities for these youth in substantiated reports in 2020 (with Alaska having the greatest disproportionalities in substantiation between American Indian/Alaska Native and White youth; DHS ACF, 2022). In comparison, rates of child maltreatment substantiation for American Indian youth in California is 14.6 per 1,000, Illinois is 4.1 per 1,000 and the nation is 15.5 per 1,000 (DHS ACF, 2022).

In sum, compared to other states Minnesota screens-out a large percentage of reports, but offers services to the families they screen out. Minnesota also sends a majority of their reports to the Family Assessment track, and has huge racial disproportionalities in child maltreatment rates, particularly for American Indian/Alaska Native, Black, and

Multiracial youth. These features are unique to this state and emphasize the importance of replicating and extending results found using datasets from other states.

Research Questions and Hypotheses

The current dissertation replicates and extends previous work by examining (1) a variety of placement characteristics, (2) how they influence the likelihood of crossover, and (3) the timing of that potential crossover. The current dissertation uses data from the Minn-LInK Project (Minnesota- Linking Information for Kids), which is housed in the University of Minnesota's Center for Advanced Studies in Child Welfare (CASCW). Minn-LInK integrates information about youth involved in Child Protective Services (CPS), juvenile and adult courts, and education systems within the state of Minnesota. The project was created with the purpose of allowing researchers and practitioners to track youth across multiple systems over time to better understand the wellbeing of youth and their families in Minnesota. Data used in the current dissertation included information from state administrative data systems used for state and federal reporting. Specifically, data were collected from the Minnesota Department of Education (Minnesota Automated Reporting Student System) and Department of Human Services (Social Service Information System), along with court data. This dissertation builds on a programmatic set of papers using Minn-LInK data examining youth's experiences throughout multiple state systems (e.g., Cho et al., 2019; Gibson et al., 2019; Piescher et al., 2014). The current dissertation utilizes a multiverse approach by conducting all analyses using three distinct datasets (each of which differed in the way they were coded) to address the following research questions:

1. Are out-of-home placement characteristics (see below), above and beyond CPS involvement, associated with a higher or lower likelihood of crossing over from the foster care system into the juvenile justice system for the first time? It is hypothesized that:
    a. The following characteristics will be identified as **risk factors**, meaning that youth, on average, who possess the characteristic will be at additional risk for crossing over into the juvenile justice system compared to youth without the characteristic:
        i. Initial home removal at an earlier age, placement instability, more days spent in care, placement in residential care, removal for physical abuse or a parent or child reason, more CPS involvement, more school mobility (during both pre-adolescence and adolescence), and being identified as male, a minority race or ethnicity, and receiving special education services
    b. The following characteristics will be identified as **protective factors**, meaning that, on average, youth who possess these characteristics will be associated with a reduced risk for crossing over into the juvenile justice system compared to youth without the characteristic:
        i. Placement in kinship care
    c. Because of limited work or mixed findings, it is **unknown** whether the following characteristics will be identified as risk or protective factors:
        i. Placement in non-relative foster care, removal for sexual abuse, neglect, and inadequate housing

2. Among youth who cross over from the foster care system into the juvenile justice system, which placement characteristics, above and beyond CPS involvement, are associated with the age for them to cross over for the first time? It is hypothesized that:
    a. The following will be identified as **risk factors**, meaning that youth, on average, who possess the characteristic will be at additional risk for crossing over **earlier** compared to youth without the characteristic:
        i. Initial home removal at an earlier age, placement instability, more days spent in care, placement in residential care, removal for physical abuse or a parent or child reason, more CPS involvement, more school mobility (during both pre-adolescence and adolescence), and being identified as male, a minority race or ethnicity, and receiving special education services
            1. A post-hoc analysis will examine types of disabilities that crossover youth have most frequently.
                a. It is hypothesized that crossover youth will most frequently have Emotional and Behavioral Disabilities
    b. The following will be identified as **protective factors**, meaning that youth, on average, who possess the characteristic will be at additional risk for crossing over **later** compared to youth without the characteristic:
        i. Placement in kinship care

c. Because of limited work or mixed findings, it is **unknown** whether the following characteristics will be identified as risk or protective factors:
    i. Placement in non-relative foster care, removal for sexual abuse, neglect, and inadequate housing

3. An exploratory analysis examined if there are different profiles of placement characteristics among youth in out-of-home care. Because this analysis is exploratory, no hypothesis was made. However, given previous related work (Rebbe et al., 2017; Waid et al., 2021), it was expected that three risk profiles will emerge, representing low, medium, and high risk.
    a. A post-hoc analysis will examine the percentage of crossover youth who fall into each class.
        i. It is hypothesized that classes characterized by high probability to experience risky placement characteristics will include a higher percentage of crossover youth.

Chapter 2: Methods

Participants

Participants included all Minnesotan youth born in 2000 or 2001 who were in out-of-home care between ages 9-10 (N = 997). These criteria were used to create the most recent cohort of youth who experienced an out-of-home care placement that can be followed from birth to age 18. Youth who were involved in the juvenile justice system prior to an out-of-home placement were excluded from the sample (n = 16). The sample included 981 youth who were followed from birth until age 18. The sample was 46.6% female and the average age at first out-of-home placement was 7.38 years (*SD* = 2.98).

Youth could fall into multiple racial/ethnic categories. The largest racial/ethnic category was white (61.5% were identified as white), with the next largest being Black (29.9%), followed by American Indian or Alaskan Native (21.1%), Hispanic (11.6%), and Asian or Pacific Islander (3.4%).

Procedure

Dataset Creation

The study utilized data from the Minn-LInK Project (Minnesota- Linking Information for Kids), which is housed in the University of Minnesota's Center for Advanced Studies in Child Welfare (CASCW). Minn-LInK integrates information about children involved in Child Protective Services (CPS), juvenile and adult courts, and education systems within the state of Minnesota. This project allows data for youth who have been involved in multiple systems to be linked using identifying information. Data for the current study consisted of state administrative data from the out-of-home care, child protection, education, and juvenile court systems. CASCW has long-standing agreements with the Minnesota Departments of Education and Human Services permitting the use of these data for the current study. Because the CASCW does not have ongoing data sharing with the courts, it was necessary to submit a separate request to the court system to obtain court-related data. Following approval from the courts, a non-disclosure agreement between the courts and university was created to obtain a court order to receive the data.

After obtaining this approval, a staff member from the Minn-LInK project created de-identified datasets including an anonymous, common ID that allowed youth to be

linked across datasets. Dataset creation is summarized in Figure 1 and detailed below. First, individuals with birth dates between 1/1/2000 and 12/31/2001 were identified in the Child Protection Services (CPS) datafile and transferred to IBM SPSS Statistics (Version 26), resulting in a dataset of 59,427 individuals. Following this, in a separate datafile, individuals who had experienced a placement in out-of-home care between 1/1/2010 and 12/31/2011 were identified. This included any individual who had: (1) started a placement between 1/1/2010 and 12/31/2011, (2) started a placement before 1/1/2010 that ended between 1/1/2010 and 12/31/2011, or (3) started a placement prior to 1/1/2010 that ended after 12/31/2011. This resulted in a dataset including 16,675 individuals. Next, using IBM SPSS Statistics (Version 26), CPS data was merged with the out of home placement file to identify individuals who were in care between 1/1/2010 and 12/31/2011 and had birthdates between 1/1/2000 and 12/31/2001, resulting in a final sample size of 997. This sample was then used with all matches discussed in the follow paragraph.

A dataset with school information was created with individuals who had birthdates between 1/1/2000 and 12/31/2001, resulting in 175,443 cases. This dataset was then matched with the final sample using Link Plus (National Program of Cancer Registries, Version 3.0) based on first, middle, and last names and dates of birth. This resulted in 956 matched cases in the final school dataset. Next, the juvenile court dataset was created. The court data was received in text format so was first transferred to IBM SPSS Statistics (Version 26). After this, individuals who had birthdates between 1/1/2000 and 12/31/2001 were identified, resulting in a dataset with 28,839 cases. Using Link Plus, cases were matched with the sample using birthdate, first, middle, and last name. This resulted in 351 matched individuals in the final juvenile court dataset. The resulting data

for the sample were compiled into four separate datasets (CPS, out of home care, school, and juvenile court). Scrambled IDS were created for each individual within a dataset, identifiable information was deleted, and common ID numbers were created to link individuals across datasets. The data were then ready for use. Because of the extremely sensitive nature of this data, all work with the datasets took place in the Minn-LInK lab or using a remote virtual machine. This study received IRB approval from the University of Minnesota's IRB under protocol number 00004926.

Data Coding

The datasets that were created by the Minn-LInK staff member (the only person authorized to access the identified data) contained basic information, but most variables used in analyses were created by coding and calculating based upon that basic information. The first step in this process was determining which information to code. For crossover youth, out-of-home care experiences that took place following the crossover event were not coded to ensure experiences occurred after the crossover event would not be including in predicting the event.

As detailed above in the multiverse section in Chapter 1, issues of unequal design emerged. If all non-crossover youth data were utilized (until youth were age 18), they would have much more time to accumulate out-of-home care experiences than the crossover youth (who crossed over on average at age 13 but crossed over as early as age 10). Because the study ultimately aimed to compare the two groups' experiences, it was essential to create as equal of a design as possible. As previously discussed, deciding the cutoff dates for including youths information was a somewhat arbitrary decision given the non-existing advice in the literature. Therefore, information was coded in three

different ways, resulting in three datasets that were used for all analyses. Descriptive information about the sample included in each dataset is provided in the following chapter.

Dataset 1: All Dataset. For crossover youth, the coding cutoff date was the date of their crossover. For non-crossover youth, all information available (until age 18) was included. This resulted in a sample size of 981 youth. This dataset retained the most information out of the three. However, it was limited by issue of unequal design, as discussed above.

Dataset 2: First Dataset. The earliest date of crossover in the sample was used as the coding cutoff date for everyone in the sample. This resulted in a sample size of 532 youth. While this technique created the most equal design because everyone had the same cutoff date, it also had the most limited information. Youth's information was cutoff at approximately age 10. Because some youth did not enter care until age 13, none of their information could be included. Furthermore, this dataset could not include variables that were only applicable to adolescents, such as adolescent school mobility and some types of residential care (specifically correctional facilities).

Dataset 3: Average Dataset. The average date of youth's crossover was used to determine the cutoff date for all youth except those who crossed over before that date. In those instances, the youth's crossover date was used as their coding cutoff date. This resulted in a sample size of 979 youth. Two youth that were in the All dataset were excluded from this dataset because they had not entered the child welfare system by the cutoff date. Therefore, though the samples consist of almost exactly the same individuals (with the exception of the two excluded individuals), the information for each individual

varied because there was a reduction of amount of information coded, particularly for non-crossover youth.

Measures

All variables were created from raw information about children's experiences in state data systems. For further details on how each variable was created, see Table 1.

Court Variables

Crossover. This variable indicates if the youth was involved with the juvenile justice system for an offense or violation allegedly committed by the youth. Youth need not be adjudicated for the offense to have had contact with the justice system. This variable was binary, indicating if the youth ever had contact with the juvenile justice system (1) or not (0).

Age at Crossover. This variable indicates the age when the youth had first contact with the juvenile justice system for an offense or violation allegedly committed by the youth. This variable was created by subtracting youth's birth dates from their first alleged offense dates.

Number of Unique Court Cases. This variable measures the sum total of the unique court cases a youth experienced in the juvenile justice system up to the age of 18. Youth often had multiple charges per case. This variable measured how many separate cases the youth had, indicating how many separate times they were in court.

Charge Type of Alleged Offenses. Binary variables were created to indicate the type of charge of youths' 1) first alleged offense or 2) any offense. Charges included: felony, gross misdemeanor, petty misdemeanor, and juvenile petty offense (Minnesota

Statute § 260B). For youths' first offenses, in the event that they were charged with more than one type of an offense, the most severe offense was coded.

Adjudication of Alleged Offenses. Binary variables were created to indicate if the youth had been adjudicated for 1) their first alleged offense or 2) any offense. The variables indicate the type of charge (e.g., felony, misdemeanor) and if the youth was adjudicated for that charge.

Out-of-Home Care Variables

Age at First Placement. This variable indicates youths' ages (in years) at their first placement in any care setting. For logistic regression and latent class analyses, this variable remained continuous. For survival analyses, this variable was collapsed into developmental periods. These included: infancy (0-3), early childhood (4-6), middle childhood (7-10), and adolescence (11-12). Youth who were more halfway or more past their birthday when they experienced their first placement, their age was rounded up to the nearest age, such that youth who were placed at 6.5 years old were coded as falling into the middle childhood group.

Total Time in Care. This variable indicates the total number of days youth spent in out-of-home care from birth until the coding cutoff date.

Number of Placements (Placement Instability). This variable aims to measure instability of youths' placements over the course of their time in care. Specifically, the variable indicates the number of times youth changed placements during their time in care, across all placement episodes. Because this variable is not measuring the number of unique placements, but rather placement changes, a placement change would be counted

if youth were removed from a placement and returned to the same placement at a later date.

Placement Types. Placement type variables indicate if a youth spent any time in a variety of placement settings (described in detail below). There were 12 unique placement types represented in the dataset. Categories of placement types were created based on prior work (Cho et al., 2019) and recommendation from the Minnesota DHS (Minnesota DHS, 2021). Each placement type category was coded as a binary yes (1)/no (0)variable indicating if the youth was ever placed in that placement type.

Residential Care. These placements include locations that are characterized by homes that do not include a primary caregiver and often include some type of treatment program. The specific placement types included: residential treatment centers, group homes, foster homes with corporate or shift staff, Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICF/IID), and correctional facilities. Correctional facilities are operated by the Department of Corrections and include small correctional facilities (that house less than 13 youth), large correctional facilities (that house more than 13 youth), and locked correctional facilities.

Kinship Care. Kinship placements are placements with relatives or known others, including foster care, a pre-adoptive home, or a pre-kinship home (this includes placements with relatives or known others that are not formal with the intention of leading to a formal placement).

Non-relative Foster Care. These placements are in homes with families that are unrelated and unknown to the child and include at least one primary caregiver. These placements include foster care and pre-adoptive homes.

Removal Reasons. Removal reason variables indicate the reason a youth was removed from their home. Youth were commonly removed from a placement for multiple reasons and each reason was included in coding. Similar to placement type variables, removal reasons were categorized to reduce the number of variables in the model and combine groups with small frequencies. The categories were created based on prior work (Cho et al., 2019) and recommendation from the Minnesota DHS (Minnesota DHS, 2021). Each removal reason was coded as a binary (yes/no) variable indicating if the youth had ever experienced that removal reason.

Physical Abuse. This binary variable indicates if youth were removed from the home because of alleged or substantiated physical abuse. Minnesota statute (Minnesota Statute § 260E.03) defines physical abuse as physical injury or threatened injury that is inflicted by a caregiver by non-accidental means. The statute provides specific examples of physical abuse, including (but not limited to) cutting, kicking, burning, striking with a closed first, shaking a child less than 3 years of age, interfering with a child's breathing, threatening with a weapon, and purposefully giving a child dangerous or harmful substances.

Sexual Abuse. This binary variable indicates if youth were removed from the home because of alleged or substantiated sexual abuse. Minnesota statute (Minnesota Statute § 260E.03) defines sexual abuse as the subjection of a child by a person responsible for the child's care, who has a significant relationship to the child, or who is in a position of authority to penetration or sexual contact. Examples of sexual contact (Minnesota Statute § 609.341) include: intentional touching of the child's intimate parts or clothing immediately covering those parts, touching by the child of the abusers' intimate parts or

clothing immediately covering those parts by coercion or inducement if the child is younger than 14 or mentally impaired. Further examples of acts that are categorized as sexual abuse include sexual extortion, solicitation of children to engage in sexual conduct, communicating sexually explicit materials to children, and sex trafficking.

Neglect. This binary variable indicates if youth were removed from the home because of alleged or substantiated neglect. Minnesota statute (Minnesota Statute § 260E.03) defines neglect as purposeful failure for a child's caregiver to supply a child with food, clothing, shelter, and health, medical, or other necessary care, failure to protect a child from dangerous actions or conditions, failure to provide appropriate supervision, failure to provide an education, prenatal exposure to controlled substances, chronic and severe use of alcohol or other controlled substances that adversely affects children's needs and safety, or a pattern of emotional harm inflicted on the child that contributes to an impairment of emotional functioning.

Inadequate Housing. This binary variable indicates if youth were removed because the family did not have adequate housing for the child. Inadequate housing can include homelessness as well as unsafe, overcrowded, or otherwise unacceptable housing facilities that are not appropriate for youth residence.

Parent Reason. Parent reason for removal was created by a combining a series of removal reasons, including parent inability to cope, parent death, parent incarceration, parent alcohol use, parent drug use, termination/relinquishment of rights, parent inability to physically cope, parent inability to mentally cope, and family conflict. This variable was binary.

Child Reason. Child reason for was created by a combining a series of removal reasons, including child alcohol use, child drug use, child behavior, child disability, child mental health, and child delinquency. This variable was binary.

Child Protective Services (CPS) Variable

CPS Involvement. This variable is the total number of CPS accepted cases in which youth were alleged to have been maltreated, indicating how many separate CPS accepted cases in which youth were involved. Alleged abuse was not substantiated in all cases. No matter the outcome of a case, each unique accepted case was included in the total sum.

School Variables

School Mobility. This variable indicates how often, on average, youth moved schools during each school year. This variable excluded school moves that happened in between academic years to account for typical moving between schools that comes along with changing grades (e.g., moving from middle to high school).

Pre-adolescent School Mobility. Two variables were created to indicate: 1) how often, on average, youth moved schools during the school year each year between 2005 (when youth would have been approximately 5) and 2012 (when youth would have been approximately 12) and 2) a binary variable indicating if youth had ever changed schools between 2005 and 2012 (yes/no).

Adolescent school mobility. Two variables were created to indicate: 1) how often, on average, youth moved schools during the school year each year starting in 2013 (when youth would have been approximately 13) and 2) a binary variable indicating if youth had ever changed schools starting in 2013 (yes/no). This variable was not created for the First

dataset because no information was included past 2010. School changes were calculated for each academic year by summing the number of schools students were enrolled in, with the exception of the first school. Therefore, specifically this variable was calculated by summing the number of schools students were enrolled in that academic year and subtracting one.

Race/Ethnicity. Race/ethnicity information was provided from school data for all youth except those who were not in the school dataset. For those youth, race information was pulled from SSIS. Race/ethnicity categories included: American Indian or Alaskan Native, Asian or Pacific Islander, Hispanic, Black, or White. Because youth could be only identified in one racial category and this varied between years and schools, race/ethnicity was coded as any race/ethnicity the child was identified as throughout their school records, meaning that youth could be identified as being in more than one of the racial/ethnic categories.

Sex. Youth sex information was provided from school data. Youth were coded as either female (0) or male (1).

Special Education Status. This variable is a binary variable indicating if a child was ever identified as receiving special education services.

Disability. Binary variables were created to indicate the primary type of disability for youth who received special education services. Primary disability could differ between academic years, and therefore youth could be identified as having more than one disability.

Data Analysis Plan

Data were first analyzed descriptively, including means and frequencies of study variables and court variables (age at crossover, number of unique court cases, charge type of alleged offenses, and adjudication of alleged offenses). Next, correlational analyses between study variables were conducted for each of the three datasets using the multiverse approach. Separate analytic methods were utilized to answer each research question, each of which are described below. Each of these analyses were also conducted for each of the three datasets using the multiverse approach. It is important to note that *p* values were interpreted to indicate significance of statistical tests. *P* values that are nominally significant are presented, though given the number of statistical tests conducted, it is possible that the Type I error rate was inflated. Though there are more conservative approaches to *p* value interpretation, such as *p* value corrections and smaller *p* value cutoffs, these were not utilized in the current dissertation. Results should be interpreted with this in mind.

Research Question 1: Logistic Regression

A logistic regression was used to address the first research question regarding how placement characteristics are associated with the likelihood of crossing over into the juvenile justice system for the first time. A logistic regression produces odds ratios, which indicate the likelihood of an event occurring based on the presence of the predictor. IBM SPSS Statistics (Version 26) was used to conduct this analysis. Predictors in the model included all out-of-home placement variables, the CPS involvement variable, school variables (including the continuous school mobility variables), and youth characteristic variables (youth race/ethnicity, sex, and special education status) to predict crossover (yes/no).

Research Question 2: Survival Analysis

To address the second research question regarding timing of cross over, a survival analysis was used. This method is particularly advantageous because it allows for the inclusion of youth who have not yet experienced the outcome (in this case, crossing over), also known as (right) censored cases (Brook & McDonald, 2009). First, for crossover youth, it was calculated how many days it took to crossover (subtracting their birth dates from the crossover dates) and for non-crossover youth, how many days they were in the study (subtracting their birth date from the end of the study period date, which is their 18th birthday). Then, Bivariate Kaplan-Meir survival curves were generated to investigate the relationship between the length of time before crossover and placement characteristics, and these differences were then tested using log-rank tests (Ahn et al., 2017). Log-rank tests were used to compare survival curves of the two groups to assess whether curves were identical (Bland & Altman, 2004). If the log-rank test is significant, it indicates that placement characteristic is associated with early or later onset of an event (in this case, crossing over into the juvenile justice system). This type of analysis requires categorical variables.

Predictors in the model included the categorical age at first placement variable, all placement type and removal reason variables, the binary school mobility variables (pre-adolescent and adolescent), race/ethnicity, sex, special education status. Days in care, placement instability, and number of accepted CPS cases were not included in this set of analyses because: 1) these variables were continuous and there was no theoretical justification of collapsing them into categories and 2) as youth spent more time in care, they tended to accumulate more days in care and placement changes, thus making it

challenging to interpret results involving these variables in a meaningful way. A post-hoc analysis was conducted to examine the percentage of youth with specific disabilities in the full sample, non-crossover sample, and crossover sample in the All dataset. IBM SPSS Statistics (Version 26) was used to conduct these analyses.

Research Question 3: LCA

Lastly, to address the third research question about clustering of children's placement characteristics, latent class analysis (LCA) was used. LCA is used to derive similar profiles among a group of participants (Rebbe et al., 2017). Typically, LCA is used when all variables included are categorical and Latent Profile Analysis (LPA) is used when variables included are continuous. The current study utilized both categorical and continuous variables in the analyses, which has been termed a "mixed approach" (referring to mixing LCA and LPA; Berlin & Parra, 2014). For ease of discussion, LCA will be the term used throughout the paper. Variables in the LCA models included weeks in care, placement instability, placement types, and removal reasons. Weeks in care was used rather than days in care because the model identified the days in care variable as having too much variability. Because LCA requires a large sample size, only the All and Average datasets were tested using this approach. It is important to note that LCA is an exploratory process and was thus treated as a follow-up analysis in the current study. MPlus (Muthén & Muthén, 1998-2017) was used to conduct this analysis. A post-hoc descriptive analysis was conducted (using IBM SPSS version 26) to examine the percentage of crossover youth who fell into each of the latent classes.

Data Assumptions

Before any analyses were conducted, data were checked to see if they met all assumptions. Results of these tests are reported in the following chapter.

Research Question 1: Logistic Regression. There are 6 assumptions that must be met for logistic regression, including: 1) the outcome variable is binary; 2) observations are independent; 3) no multicollinearity among predictors; 4) no extreme outliers; 5) there exists a linear relationship between predictors and the logit of the outcome variable; 6) the sample size is sufficiently large.

Research Question 2: Survival Analysis. Survival analysis is a non-parametric test, meaning that there are no assumptions related to normal distribution, linearity, or homogeneity. There are three assumptions that must be met for survival analysis, including: 1) participants who are censored have the same survival prospects as those who are uncensored (i.e., continued to be followed); 2) survival prospects are the same for participants who enrolled early and late; 3) the event happens at the specified time (Goel et al., 2010).

Research Question 3: LCA. LCA is also a non-parametric test. There are 2 assumptions that must be met for LCA, including: 1) models should be justly identified or over identified (i.e., the number of equations must be greater than the number of estimated parameters) and 2) observations are independent within each class.

Missing Data

Because the study utilized administrative data, which is required for state and federal reporting, there was little missingness present in the data. For crossover, sex, and out of home placement and CPS variables, there was no missingness. There was some missing data from variables derived from the school dataset because some youth in the

sample did not go through the state school system. There was one youth with missing race/ethnicity variables in the All and Average datasets, though there was no missingness for race/ethnicity variables in the First dataset. There was, however, more missingness in the special education and school mobility variables. Specifically, 44 (4.5%) youth in the All and Average datasets and 33 (6.2%) youth in the First dataset were missing information for these variables. For the logistic regression and survival analyses, listwise deletion was utilized to handle missing data. For the LCA, missing data were handled with full information maximum likelihood (FIML).

Chapter 3: Results

Model Assumptions

First, assumptions for each analytic technique were checked for all datasets. All logistic regression assumptions were met for each dataset. The response variable (crossover) was binary (yes/no). The observations were independent as there were no repeated measurements of the same individual. Multicollinearity occurs when two or more predictors in a model are highly correlated. For all datasets, the Variable Inflation Factor VIF score was less than 2.37 (using 2.5 as a conservative cutoff; Thompson et al., 2017), indicating that multicollinearity was not an issue. One individual was identified as an outlier in the All and Average datasets (Cook's distance score of 1.25). Analyses were run both with and without this individual as a sensitivity analysis and results did not significantly differ, thus the outlier was retained. Logistic regression assumes that there is a linear relationship between predictors and the logit of the outcome variable. Using the Box-Tidwell test in IBM SPSS Statistics (Version 26), this assumption was met for all

models. Lastly, all datasets had a sufficiently large sample size. This was calculated by conducting a power analysis for the regression tests using a Monte Carlo simulation in R (10,000 replications). Given a sample size of 452 (the sample size of the smallest dataset), and assuming an alpha of .05, a regression test would have power of .99 to detect medium effects (f=.25).

Assumptions for survival analyses were also met in all datasets. All youth (whether censored or uncensored) had the same survival prospects at the beginning of the study timeframe (i.e., at birth). Furthermore, though youth entered their first placement at different time points, they were all "enrolled" in the study from birth, when data were started to be collected on each individual. Lastly, the event (crossover) happened at the time specified, meeting the last assumption. Assumptions for LCA were also met in the All and Average datasets. Models were justly identified and all observations were independent within each class.

Sample Descriptive Information

Sample demographic information for youth included in each dataset is reported in Table 2. While most sample characteristics were fairly similar demographics among the three datasets, there were some notable differences. The First dataset is characterized by lower proportions of youth experiencing residential care, being removed from the home for inadequate housing, a child reason, neglect, physical abuse, and sexual abuse compared to the All and Average datasets. As would be expected, the average total days in care was highest in the All dataset, followed by the Average dataset, with the First

dataset having the lowest average total days in care. Lastly, the All dataset had a slightly higher average number of CPS accepted cases compared to the First and All datasets.

Crossover Demographic Information

Information about crossover experiences (for youth who crossed over) are reported in Table 3. Because proportions were similar between all datasets (and the All and Average datasets were identical on these variables), findings from all datasets are discussed together in this section. Youth who crossed over were most likely to be charged with a misdemeanor for their first offense and for any offense (including first and any following charges). Youth were also more likely to be adjudicated with a misdemeanor compared to other charges. It is important to note that though some youth were charged with a felony as their first offense, very few were adjudicated with that charge. However, within the study timeframe, approximately a third of youth who crossed over had been charged with a felony.

Correlations Among Study Variables

All Dataset

Correlations among study variables for the All dataset can be found in Table 4. Many study variables were significantly associated with the crossover outcome variable, but not necessarily in the ways hypothesized. For example, less placement instability – or in other words, more stable placement - was associated with crossover into the juvenile justice system. Furthermore, placement in *non-relative* foster care was associated with decreased risk of crossover. Other relationships were as hypothesized. Increases in school

mobility and involvement in a greater number of CPS accepted cases were associated with crossing over. Placement in residential care, removal from the home because of a parent or child reason, identifying as American Indian or Alaskan Native, and being male were also associated with experiencing crossover.

Other notable associations between study variables included a lower age at first placement associated with great number of placement changes and greater total days in care. Not surprisingly, as youth spent more time in care, they were more likely to experience more placement instability. Interestingly, placement instability was associated with increased school mobility before and during adolescence, and total days in care was associated with increased school mobility before adolescence.

First Dataset

Correlations among study variables for the First dataset can be found in Table 5. As in the All dataset, many variables were associated with the crossover outcome variable. Fewer days in care and fewer placement changes was associated with increased risk of crossover. Removal for child reason and male sex were also associated with higher risk of experiencing crossover. Additionally, removal for physical abuse and placement in non-relative foster care was associated with lower likelihood of crossover.

Further important associations between study variables included a lower age at first placement associated with more placement instability and more total days in care. Furthermore, as youth spent more time in care, they were more likely to experience more placement instability. As in the All dataset, placement instability was associated with increased school mobility before adolescence.

Average Dataset

Correlations among study variables for the Average dataset can be found in Table 6. Removal for a parent or child reason, placement in residential care, American Indian or Alaskan Native race, males, and being identified as receiving special education services was associated with increased risk of crossing over. On the other hand, being identified as Asian or Pacific Islander was associated with less risk of crossing over, and increased involvement with CPS was related to decreased risk of crossing over.

Many of the same associations noted in the prior two datasets were present in this one as well. For example, a lower age at first placement is associated with more placement instability and more total days in care. Also, more time in care was related to more placement instability. As seen in the findings from the previous two datasets, placement instability and days in care was associated with increases in both pre-adolescent and adolescent school mobility.

Research Question 1: Logistic Regression

The first research question used logistic regressions to examine which out-of-home placement characteristics were associated with a higher or lower likelihood of crossing over from the foster care system into the juvenile justice system for the first time. Findings from all logistic regressions can be found in Table 7. Findings are grouped in three categories for discussion: variables that were associated with increased risk for crossing over (risk factors), decreased risk for crossing over (protective factors), or not associated with the crossover variables (insignificant findings).

Risk Factors

First, findings related to variables that were associated with increased odds of crossing over are reported. Findings using the All dataset revealed that the odds for youth who had ever experienced a residential care placement were 60% higher compared to youth who had never experienced a residential care placement. For both the All and Average datasets, youth who were removed from the home for physical abuse were at higher odds (81% and 83%, respectively) of crossing compared to youth who had not been removed for physical abuse.

All three datasets identified that being removed from the home for a child or parent reason is associated with increased risk of crossing over. Specifically, in the All dataset, the odds of crossing over for youth who were removed from the home for a child-reason were 2.16 times higher than youth who were not removed for child reasons, and the odds of youth crossing over who were removed from the home for a parent-reason were 73% higher than youth who were not removed for parent reasons. The All and Average datasets indicated that the odds of crossing over for youth who experienced more school-mobility in adolescence was higher than youth who experienced less school-mobility. The odds of youth crossing over increased 38% (All dataset) - 46% (Average dataset) with each one-unit increase in adolescent school mobility.

Furthermore, analyses across all three datasets revealed that youth who identified as American Indian or Alaska Native were at increased risk of crossing over compared to youth who did not identify as American Indian or Alaska Native. The odds of crossing over youth who were identified as American Indian or Alaska Native were 97% (First dataset) – 2.80 (All dataset) times higher than youth who were not identified as American

Indian or Alaska Native. Additionally, analyses found that the odds of male youth crossing over were 47% (Average dataset) - 84% (First dataset) higher than female youth.

Protective Factors

Next, findings related to variables that were associated with decreased odds of crossing over are reported. Interestingly, in the All dataset, results indicated that the odds of crossover were 8% lower with each additional placement. In the First dataset, results indicated that for youth who had been placed in non-relative foster care, the odds of crossing over were 54% lower than youth who had not been placed in non-relative foster care. Lastly, in the Average dataset, for every additional CPS accepted case a youth had, the odds of that youth crossing over decreased by 5%.

Insignificant Findings

There were many study variables that were not associated with an increase or decrease in youth's odds for crossing over. In all three datasets, those variables included: age at first placement, days in care, placement instability, placement in kinship care, removed from the home for neglect, sexual abuse, or housing, pre-adolescent school mobility, Asian, Hispanic, Black, or White race/ethnicity, and special education status. In the All and First dataset, CPS involvement and being placed in residential care were not associated with the odds of crossing over. In the All and Average dataset, the interaction effect of placement instability and American Indian or Alaskan Native race was not significant. Lastly, in the First dataset, being removed from the home for physical abuse and Black race were not associated with the odds of crossing over.

Research Question 2: Survival Analysis

Of those that crossed over, the average age of crossover was 13.7 years (*SD* = 2.0). Research question 2 aimed to examine which placement characteristics are associated with the timing of youth's crossover. Kaplan-Meier survival analyses were conducted to determine differences in risk of crossing over based on differences in placement and individual characteristics. Mantel-Cox log-rank tests were conducted to examine differences between groups. Results from comparisons across all datasets can be seen in Table 8. Means and standard errors of age at crossover based on these placement and individual characteristics are reported in Table 9 for those variables that had significant differences.

Risk Factors: Predicting Earlier Crossover

Results of the log-rank tests demonstrated group differences in timing of crossing over for many study variables. The log-rank test revealed a significant difference in timing of crossover between youth placed in residential care and to youth who were not placed in care in the All (χ^2 (1, 980) = 4.33, p = .04) and Average datasets (χ^2 (1, 978) = 12.54, p = < .001; see Figure 2 for survival plots). The results suggest that youth who were placed in residential care on average crossed over earlier than youth had never experienced a residential care placement. In the First dataset only, the log-rank test indicated a significant difference in the timing of crossover between youth who were removed from the home for physical abuse and youth who were not removed from the home for physical abuse (χ^2 (1, 531) = 6.16, p = .01; see Figure 3 for survival plot), such that removal from the home for physical abuse was associated with an earlier crossover.

The next log-rank comparison indicated a difference between the timing of crossover for youth who were removed from the home for a child reason and those who

were not in the All (χ^2 (1, 980) = 47.52, p = <.001), First (χ^2 (1, 531) = 29.41, p = <.001), and Average (χ^2 (1, 978) = 57.10, p = <.001) datasets. As can be seen in the survival plots in Figure 4, youth who were removed from the home for a child reason crossed over, on average, earlier than those who had not been removed for a child reason. Similarly, results from the All (χ^2 (1, 980) = 8.98, p = .003) and Average (χ^2 (1, 978) = 7.64, p = .01) datasets indicated a difference between the timing of crossover for youth who were removed from the home for a parent reason and those who were not, such that removal from the home for a parent reason was associated with an earlier crossover (see Figure 5 for survival plots).

Lastly, there were some group differences in timing of crossover based on child characteristics. The log-rank test revealed a significant difference in crossover timing between youth who were identified as American Indian or Alaska Native and youth who were not in the All (χ^2 (1, 979) =19.63, p <.001), First (χ^2 (1, 531) = 7.04, p = .01), and Average (χ^2 (1, 977) = 20.01, p <.001) datasets. Survival plots (Figure 6) indicate that youth identified as American Indian or Alaska Native were at increased risk of crossing over earlier compared to youth who were not identified as American Indian or Alaska Native. Additionally, results revealed a significant difference in cross over timing between males and females in the All (χ^2 (1, 980) = 14.20, p <.001), First (χ^2 (1, 531) = 14.51, p <.001), and Average datasets (χ^2 (1, 978) = 14.54, p <.001), such that male youth tended to cross over earlier compared to female youth (see Figure 7 for survival plots). Finally, the log-rank test revealed differences in timing of crossover between youth who were identified as receiving special education services and those who were not identified as needing those services in the All (χ^2 (1, 556) = 8.25, p = .01), First (χ^2 (1, 304) = 4.78,

p = .03), and Average (χ^2 (1, 556) = 8.55, p = .003) datasets. The survival plots (Figure 8) indicate that youth who were identified as receiving special education services were more likely to cross over earlier than youth who were not identified as needing those services.

Protective Factors: Predicting Later Crossover

Results of the log-rank tests indicated that two study variables were associated with later timing of crossover. First, there was a significant difference in crossover timing between youth placed in non-relative foster care and youth who had not ever been placed in non-relative foster in only the First (χ^2 (1, 556) = 14.47, p <.001) dataset, such that youth who had been placed in non-relative foster care were more likely to crossover later than youth who had not experienced that placement setting (see Figure 9 for survival plot). Second, the log-rank test revealed that youth who were identified as Asian or Pacific Islander were more likely to cross over later compared to youth who were not identified as Asian or Pacific Islander in the All (χ^2 (1, 979) = 3.91, p = .05) and Average (χ^2 (1, 977) = 3.94, p = .05) datasets (see Figure 10 for survival plots).

Insignificant Findings

Many study variables were not associated with the timing of crossover. In all three datasets, those variables included: age at first placement, kinship care, removal from the home for neglect, sexual abuse, or inadequate housing, pre-adolescent school mobility, and Hispanic, Black, and White race/ethnicity. In the All and Average datasets, adolescent school mobility was not related to timing of crossover. In only the First dataset, placement in residential care and removal from the home for a parent reason was not associated with timing of crossover. Lastly, in only the Average dataset, placement in non-relative foster care was not associated with timing of crossover.

Post Hoc Analysis: Child Disability Descriptive Information

Following the finding that youth who were identified as receiving special education services were more likely to cross over earlier than youth who were not identified as needing those services, a post hoc analysis was conducted with the All and Average datasets (which are identical when using data drawn from the school dataset) to examine which specific disabilities non-crossover and crossover youth were displaying. Results of this descriptive analysis can be seen in Table 10. Results revealed that of all the disabilities, there was a higher percentage of emotional and behavioral disabilities among crossover youth compared to non-crossover youth and the full sample. All other disabilities had lower or similar percentages for crossover youth compared non-crossover youth and the full sample.

Research Question 3: Latent Class Analysis (LCA)

Research question 3 aimed to explore different profiles of placement characteristics among youth in out-of-home care using LCA.

All Dataset

Model Fit statistics can be found in Table 11. Although the 6-class solution provided marginally lower AIC, BIC, and ABIC values than the 5-class solution, the LMRT indicated that this model was not significantly better than the preceding model. Therefore, the 5-class solution was selected as the best-fitting model.

The proportions of each class, average values for continuous variables, and probabilities for endorsing categorical variables for each class can be seen in Table 12. Figure 11 shows the 5-class model of probabilities for endorsing categorical variables for

each class. The first class was named *Toddler Movers* (n = 181, 18.45% of the sample), and participants in this class were characterized by a young age at first placement (M = 3.15 years), a moderate amount of time in care (M = 132.67 days) and moderate placement instability (M = 6.38 placements). Youth in the *Toddler Movers* class had high probability of experiencing a placement in non-relative foster care, being removed from the home for neglect or a parent reason and low probability being removed from the home for sexual abuse.

The second class was named *Mid-childhood Movers* (n = 260, 26.50% of the sample), and participants in this class were characterized by a first placement in mid-childhood (M = 8.91 years), a relatively small amount of time in care (M = 94.49 days), and a moderate amount of placement instability (M = 4.32 placements). All youth in this class had experienced residential care, and were likely to have experienced non-relative care. This class was also characterized by very low proportions of removal for inadequate housing and the highest proportion of being removed for a child reason out of all the classes.

The third class was named *Mid-childhood Stayers* and was the class with the largest percentage of the sample (n= 436, 44.44% of the sample). Youth in this class were characterized by a first placement in mid-childhood (M = 8.86 years old), a small amount of time in care (M = 56.16 days), and a small amount of placement instability (M = 2.39 placement changes). None of the youth in this class had experienced a placement in residential care, though were likely to have experienced placement in non-relative foster care.

The fourth class was named *Early Childhood Stayers* and included a small amount of the sample (n = 56, 5.71% of the sample). The youth in this class were characterized by a first placement in early childhood (M = 5.64 years), the most amount of time in care (compared to the other class; M = 572.06 days), and a moderate amount of placement instability (M = 5.05; but much less placement changes than the early childhood class discussed below, thus it was termed stayers rather than movers). This class was characterized by a high probability of experiencing non-relative foster care and neglect.

The fifth and smallest class was named *Early Childhood Movers* (n = 48, 4.89% of the sample). Youth in this category were most prominently characterized by their large amount of placement instability (M = 16.37 placements). Furthermore, youth falling in this class typically had their first placements in early childhood (M = 4.39 years) and was the class with the second largest average time in care (M = 345.69 days). The class was also characterized by high probabilities of being in all types of care (residential, kinship, and non-relative foster) and being removed from the home for neglect. This class was characterized by the highest probabilities of being removed for physical abuse, sexual abuse, and parent-reason, and lowest probabilities of being removed because of inadequate housing, compared to other classes.

Average Dataset

Model Fit statistics can be found in Table 10. Although the 3-class solution provided marginally lower AIC, BIC, and ABIC values than the 2-class solution, the LMRT indicated that this model was not significantly better than the preceding model. Therefore, the 2-class solution was selected as the best-fitting model. The two classes

were identified as: *Early Movers* and *Late Stayers*. The proportions of each class, average values for continuous variables, and probabilities for endorsing categorical variables for each class can be seen in Table 11. Figure 12 shows the 2-class model of probabilities for endorsing categorical variables for each class.

The *Early Movers* class (n = 248, 25.33% of the sample) was characterized by higher proportions of experiencing riskier placement characteristics. For example, youth falling in this class experienced, on average, more placement instability (M = 7.49) and more time in care (M = 184.09 days) compared to the *Late Stayers* (n = 731, 74.67% of the sample). The *Early Movers* also included youth who, on average, experienced their first placement at an earlier age (M = 3.13 years) compared to the *Late Stayers* (M = 8.83 years). Also, the *Early Movers* had higher proportions of experiencing residential care, kinship care, non-relative foster care, neglect, physical abuse, inadequate housing, and removal for a parent reason than youth in the *Late Stayers* class.

Post Hoc Analysis: Crossover Descriptive Information

Following latent class analyses for the All and Average datasets, a post hoc analysis was conducted to examine the number of crossover youth fell into each of the classes created by the analysis. This is reported in Table 12. In the All dataset, the *Early Childhood Movers* contained the most crossover youth and the *Early Childhood Stayers* was made up of the least number of crossover youth. In the Average dataset, the *Late Stayers* group had far more crossover youth compared to the *Early Movers* group.

Chapter 4: Discussion

Although there is substantial research examining crossover youth, much of this work examines factors that predict increased risk of crossover (i.e., risk) without attention

to those factors that predict decreased risk of crossover (i.e., resilience). The current dissertation leveraged a large, administrative dataset to examine factors associated with both increased and decreased likelihood and timing of crossover. Furthermore, the current dissertation utilized a multiverse approach, in which data were coded three ways resulting in three unique datasets that were used for all analyses, to increase robustness of findings. Results indicated that across all three of these datasets, removal for a child reason and identification as American Indian or Alaska Native or male increased both the likelihood of crossing over and an earlier age at crossover. Additionally for all datasets, removal for a parent reason and adolescent school mobility was associated with increased risk for crossover. Furthermore, special education status was associated with younger age at crossover in all three datasets. There were many less robust findings as well that were not found across all three datasets. Placement in residential care and removal for physical abuse was found to be associated with both the overall risk of crossover as well as the timing of crossover for some, but not all datasets. Furthermore, removal for parent reasons was associated timing of crossover in some, but not all datasets.

Contrary to study hypotheses, there were no robust findings of protective factors across the datasets. This could perhaps be because reliance on administrative data tends to focus on risk factors rather than those that may be important to shape our understanding of resilience.However, there were protective factors identified in some, but not all, datasets. For example, placement in non-relative foster care was found to be associated with decreased risk and increased age of crossover in the First dataset. Furthermore, placement instability and CPS involvement was found to be associated with decreased risk of crossing over and identification as Asian or Pacific Islander predicted

crossover at a later age in some, but not all, datasets. Lastly, contrary to expectations based on prior work, LCA findings indicated 5 class (All dataset) and 2 class (Average dataset) models that primarily differed on average age of youth at first placement and number of placement changes. Particularly for the All dataset, the LCA did not produce particularly meaningful classes. A summary of all results by dataset can be found in Table 13.

Explanation of Results

Age at First Removal

Contrary to hypotheses, age at first removal was not associated with the likelihood or timing of crossover. Previous work has consistently found that older age at first removal is associated with increased risk for delinquency (Baskin & Sommers, 2011; DeGue & Spatz-Widom, 2009; Williams-Butler, 2018). Though adverse experiences that take place early in life have been found to greatly impact later development (Cowell et al., 2015; Dunn et al., 2013; Hecht et al., 2014; Manly et al., 2001), youth removed from the home in adolescence, rather than earlier in childhood, may have been exposed to stress and adverse living conditions for longer periods of time (Hiller et al., 2018), be less adaptive to new environments (Baskin & Sommers, 2011; Lee & Hoaken, 2007) and have stronger bonds that would be disrupted from the removal (Hirschi, 2017). It is possible that this consistent finding was not replicated because all youth in the current sample were in care before age 13. Therefore, youth were all removed from care before adolescence, not allowing a broad differentiation of removal between early and later

childhood. Perhaps an effect would be more likely to be detected in a sample that had more variability in age at first removal.

Placement Type

Kinship Care. Surprisingly, kinship care was not associated with any study outcomes. Previous work has found placement in kinship care to reduce risk for crossover (Farienau & McWey, 2011; Washington et al., 2018) because youth are placed with individuals with whom they have already established a social bond and these placements tend to be more stable. However, there is other previous work that aligns with the current study's findings. For example, Ryan and colleagues (2010) and Rubin and colleagues (2008) found that kinship care was not associated with less risk of crossing over. Specifically, Ryan and colleagues (2010) found that while kinship care was not associated with risk of crossover, this effect was moderated by race and gender. They found that for African American and White females, kinship care was not associated with risk of delinquency. For Hispanic males and females, kinship care served as a protective factor for risk of delinquency but for African American and White males, kinship care served as a risk factor. Therefore, in that study, kinship care acted as both a risk and protective factor depending on youth characteristics. It is possible that in the current study, kinship care may have acted as a risk or protective factor differently between groups of youth. It also is important to note that work has established that Black youth are more likely to be placed in kinship care and to remain in that type of placement for longer periods of time compared to youth of other races/ethnicities (Geen, 2004; Ryan et al., 2010). It is possible that the current study did not detect an overall finding because of

the conflicting findings amongst race/ethnicities and sex groups. Future work should examine these potential moderating effects.

Non-relative Care. Though many studies have established kinship care as a protective factor, no work has found non-relative foster care to play a protective role, and a limited amount of work has even examined it as an independent placement, oftentimes lumping it into a category with kinship care called "family care" or leaving it out altogether. It is particularly important to look at the unique effects of this type of care on risk of crossover because in the current study, non-relative care was the most common type of placement, with three quarters of youth in each dataset having experienced this placement type at some point while in care (and prior to crossover). Findings of the current dissertation revealed that non-relative care was associated with decreased risk of crossover and older age at crossover, but just in the First dataset. One of the primary differences between the First dataset and the other two datasets (All and Average) was the average age at first placement. Youth in the First dataset were, on average, younger at their first placements (M = 5.50, SD = 2.85) than youth in the All and Average datasets (M = 7.38, SD = 2.98). According to Hirschi's (1969; 2017) social control theory discussed at length in Chapter 1, social bonds can play a key role in determining youth's developmental outcomes. This theory posits that social bonds may help prevent delinquency by giving individuals a sense of social obligation and commitment. Though it is discussed above that kinship care might prevent the disruption of social bonds by being placed with people known to them, perhaps it is more important that youth are removed from the home at an earlier age so they might not have established such a strong connection. Because youth in the First dataset were, on average, removed at a younger

age, they may have had had weaker and fewer social bonds to break with kin and more time to build new bonds with unknown caregivers, which might explain why non-relative care serves as a protective factor specifically for this group of youth.

Further, perhaps there is a protective effect of non-relative care but not kinship care because this group of younger youth at first removal may be able to establish social bonds equally between both types of placements, because they were removed before establishing strong bonds, and kinship caregivers tend to have less economic resources and support from state agencies, (Cuddeback, 2004) more parenting stress, and utilize harsher parenting strategies (Keller & VanMeter, 2021) compared to non-kin caregivers. Though youth are more likely to see their biological parents while in kinship care (Berrick et al., 1994; Cuddeback, 2004), these youth are less likely to reach permanency outcomes compared to youth in other placement types (Harris & Skyles, 2008; Ryan et al., 2010). In summary, while findings from the dissertation revealed non-relative care as a protective factor for the likelihood and timing of crossover in the First dataset, the results are ultimately not robust enough to inform implications or recommendations. However, future work should examine how age at first removal and placement in non-relative care may interact to protect youth from crossing over.

Residential Care. Lastly, residential care was associated with increased risk of crossing over in the All dataset and decreased age of crossover in the All and Average datasets. This finding was somewhat unexpected, because previous work has almost universally found that residential care increases risk of crossover (Gupta & Frederiksen, 2012; Ryan et al., 2008a). However, this discrepancy may be attributed to the smaller percentage of youth experiencing residential care in the First dataset (31.0%) compared

to the All (42.8%) and Average (40.7%) datasets. Youth in the First dataset were also far less likely to be removed for a child reason, including child delinquency, mental or behavioral health problems, or substance use, compared to youth in the other datasets. Additionally, there were no youth in the First dataset that were placed in a correctional facility because youth's information were cutoff before they were at an age in which they could be placed in this type of care. Therefore, it is possible that the First dataset is exhibiting no association between residential care and crossover not because it does not exist, but because of limitations in the dataset and coding.

In conclusion, though residential care was not found to be a significant predictor of the likelihood or timing of crossover in all three datasets, because of the limitations in the First dataset related to this variable, residential care is tentatively identified as a risk factor for crossover and is briefly discussed in the implications and recommendations section below.

Placement Instability and Time in Care

Abundant literature discusses the negative impact of placement instability on a variety of developmental outcomes (Newton et al., 2000; Rubin et al., 2007; Strijker, 2008; Zima et al., 2000), and particularly delinquency (Baskin & Sommers; Ryan et al., 2008a). However, contrary to hypotheses, not only was placement instability not found to be associated with most study outcomes in all datasets, but the only significant finding was that placement instability predicted *decreased* likelihood of crossing over in the All dataset. This unexpected finding may be explained by the method of coding used in this dataset. In the All dataset, youth who did not crossover were coded as having more days in care because their information was included from birth until age 18. For crossover

youth, on the other hand, their information was cut off at their crossover date. Therefore, non-crossover youth were simply followed for more time than crossover youth, which made it appear that they had more days in care. This may be causing the unexpected direction of this finding.

Additionally, time in care was not associated with likelihood of crossover, in contradiction to study expectations. Though the effects of likelihood of crossover were significant in the All and First datasets, the odds ratios for both effects were 1.00, indicating neither increased nor decreased risk. Though some work has found that more time in care is associated with increased risk (Ryan et al., 2010), other work has found time in care to not be uniquely related to delinquency, when controlling for other foster care characteristics, such as placement instability and placement type (Lawrence et al., 2006).

Beyond potential biases introduced via the coding process, given the evidence provided in previous work, it remains unexpected that both placement instability and time in care were found to not be associated with an increased risk of crossover. In the current study, placement instability and days in care were highly correlated in each dataset (r = .45 - .51, p <.001), indicating that as youth stayed in care longer, they tended to have more placement changes. Unexpectedly, days in care and placement instability were both negatively correlated with age at first placement (r = -.39 - -.44, p <.001) in all three datasets, indicating that youth who entered care at an earlier age tended to have fewer placement changes and spend less time in care. As discussed above, all youth in the current study experienced their first placement by age 12. Because it is well established in other work that youth who are removed earlier in the home are at decreased risk for

delinquency (Baskin & Sommers, 2011; DeGue & Spatz-Widom, 2009; Williams-Butler, 2018), and in the current sample, younger children are spending less time in care and experiencing fewer placement changes than older children, perhaps the lack of age variability is again masking potential effects of placement changes and time in care on delinquency outcomes. Future work with youth who enter care at older ages may see results more aligned with previous work. Another possible explanation of these findings is that placement instability and time in care are simply not as important as other out-of-home care and individual youth characteristics in predicting likelihood and timing of crossover.

Removal Reasons

Maltreatment. Interesting findings were revealed when examining types of maltreatment as reasons for removal. In the All and Average datasets, physical abuse was associated with increased risk for crossover, while in the First dataset, physical abuse was associated with earlier age at crossover compared to youth who had not experienced physical abuse. While this finding generally aligned with study hypotheses, removal for sexual abuse and neglect were not associated with likelihood or timing of crossover, contrary to hypotheses. Though findings related to removal for physical abuse were not identical in all three datasets, all datasets did identify physical abuse as a source of increased risk.

Some previous work has found that histories of child neglect and sexual abuse (McWey et al., 2010; Simmel, 2007) have both been linked to increased risk for childhood problem behaviors and delinquency, there has been work that has found a unique effect of physical abuse on the likelihood of exhibiting delinquent behaviors,

above and beyond other types of maltreatment (Gramkowski et al., 2009; Petrenko et al., 2012; Simmel, 2010; Tarren-Sweeney, 2008). Specifically, work using prospective, longitudinal data has found that physically abused youth are more likely to be rated as aggressive and are at greater risk for nonviolent, violent, and status offenses than their peers who were not physically abused (Lansford et al., 2002; 2007). Physically abused youth may be more likely to have a hostile attribution bias, engage in aggressive retaliatory responses, and believe aggressive behaviors are morally acceptable (Lansford et al., 2002; 2007).

Furthermore, societal responses to behavior caused by physical abuse might significantly differ from responses to behavior caused by sexual abuse and neglect. In some studies, physical abuse has been linked to externalizing behaviors, while sexual abuse and neglect are more often associated with internalizing behaviors (Bolger and Patterson, 2001; Petrenko et al., 2012), though these results are not found universally among studies. When youth display internalizing symptoms, their behaviors are likely to be met with support. Specifically, youth displaying these symptoms might undergo a treatment plan including therapeutic services and medication. On the other hand, when youth display externalizing symptoms, their behaviors are often penalized. For example, youth who act out in class are punished by the school system and again by parents at home. As youth display more and more externalizing behaviors, the punishments often get larger, potentially leading to major events, such as school expulsions and arrests. The systemic response to externalizing behaviors might be causing youth to continue or increase that behavior rather than reduce that behavior, which is the opposite of what is intended. This illustrates the PVEST framework discussed thoroughly in Chapter 1

(Spencer, 2006) which emphasizes how macrolevel factors influence proximal processes by showing how macrolevel factors, such as societal expectations about and consequences for certain behaviors, influence everyday interactions that greatly shape youth development.

Inadequate Housing. Removal for inadequate housing was not associated with the likelihood or timing of crossover. Limited work has found that unstable housing is associated with delinquent activity (Brennan et al., 1978; McCarthy & Hagan, 1992; Schwartz et al., 2008; Whitbeck et al., 1999). In the current study, very few youth were removed for inadequate housing. Therefore, it is possible that the sample size was too small to detect any effects.

Parent Reason. Removal for a parent reason was a robust predictor of both likelihood and timing of crossover. While youth were removed for a variety of parent reasons, by far the most common was drug and alcohol use. This aligns with Minnesota's reports of a steady uptick in youth removed from the home because of parental drug use since 2016 (Minnesota DHS, 2021). This also aligns with nationwide trends. For example, data from the Adoption and Foster Care Analysis and Reporting System (AFCARS) has shown that the number of cases of youth entering foster care due to parental substance use has more than doubled since 2000 (Meinhofer & Angleró-Díaz, 2019). The rise in removal for parental substance use has coincided with the rise of the opioid epidemic (Centers for Disease Control and Prevention, 2021). However, other potential explanations of this rise is changes in policies that increase child removal, more attention toward parental drug use by child welfare workers, and more drug use overall (in addition to opioids; Meinhofer & Angleró-Díaz, 2019).

Previous work has similarly found that parental substance use is related to aggressive behaviors, conduct disorder (CD), oppositional defiant disorder (ODD), truancy, and property destruction (Barnow et al., 2002, Calhoun et al., 2015; Carbonneau et al., 1998, Gabel & Shindledecker, 1993; Grekin et al., 2005). Substance using parents are more likely to utilize negative and harsh parenting techniques (Stanger et al., 2004) and are more likely to neglect their children (Vanderploeg et al., 2007). Child neglect has been found to be associated with the age at which adolescents start using alcohol (Hamburger et al., 2008). Age of drinking initiation among adolescences has been found to be 1 year earlier in individuals who experienced child neglect than those who did not have those experiences (Oberleitner et al., 2015).

Furthermore, youth whose parents use substances are more likely to use substances themselves (Rusby et al., 2018). There are many reasons why this might happen, and it is likely a combination of these reasons. First, evidence exists suggesting that genetic factors may account for some risk of a substance use disorder (Shuckit & Smith, 2001). Therefore, youth of parents abusing substances might have a genetic predisposition to develop a similar problem. Another explanation utilizes a social learning approach (Bandura, 1977). When parents use substances, youth might learn to imitate that behavior, and learn that using substances is considered appropriate (Fawzy et al., 1983). Lastly, youth who are in homes where parents are abusing substances are likely experiencing high amounts of stress. Stress may directly adversely impact development, and youth may use substances as way to cope with stress. The relationship between parent and youth substance use might be particularly critical when understanding risk for and timing of delinquency, because substance use itself can lead to

arrest and substance use has also been associated with other delinquent behaviors (Ford, 2005; Loeber & Farrington, 2000).

Child Reason. Removal for a child reason was the most robust finding of an out-of-home placement predicting both increased likelihood and earlier age at crossover. This was found in all datasets, increasing confidence in the robustness of this finding. Because delinquency itself is included in the child reasons for removal, one might expect that removal reason to be driving this effect. However, removal for child delinquency was a very infrequent reason for removal. Child behavior problem, on the other hand, was by far the most frequent child reason for removal. Additionally, few youth were removed for drug or substance use or child physical or mental disability. This aligns with previous work that has found that youth who are placed in care because of behavior problems are associated with even greater externalizing problems when they exit care (Vanschoonlandt et al., 2013) and supports the existence of a pernicious cycle in out-of-home care in which removals because of behavioral problems might lead to even more problem behaviors.

This finding relates to the above discussion of how systems react to problem behaviors. Rather than targeting those behaviors through treatments, they are attempted to be halted through punishments. Thus, children with problem behaviors are not receiving the treatment they need but are being stigmatized and penalized, ultimately increasing their likelihood of offending, and making them more likely to offend earlier, which increases likelihood for continued offenses over the lifespan (Jolliffe et al., 2017a; Jolliffe et al., 2017b).

CPS Involvement

Contrary to expectations, CPS involvement was found to be associated with *later* time of crossover, though this was found just in the Average dataset. Though this finding is in the opposite direction of what would be expected given previous literature demonstrating the negative impact CPS involvement can have on child outcomes (Bogie et al., 2001; Cho et al., 2019), because it was found in a single dataset, there is limited confidence in the robustness of this finding. It is unlikely, however, that this finding is an artifact of coding, as was discussed with placement instability and time in care, because the coding of the Average dataset makes continuous, time-related variables more equal between crossover and non-crossover youth. A possible explanation of this finding is that youth who had more involvement with CPS received more services and supports, which ultimately led to a later crossover. Another explanation is, because of the lack of robustness of this result, this effect is an example of a Type 1 error (also known as a false positive result).

School Mobility

In line with study hypotheses, adolescent school mobility was found to be associated with increased risk of crossover across datasets (with the exception that it could not be measured in the First dataset due to the younger age at cutoff for coding), though it was not associated with the timing of crossover and pre-adolescent school mobility was not associated with the likelihood or timing of crossover. Previous work has similarly found that school mobility during adolescence is particularly determinantal to development (Herbers et al., 2013; Pribesh & Downey, 1999; Rumberger & Larson, 1998; Swanson & Schneider, 1999).

There are multiple explanations for this finding. First, adolescence is a developmentally significant period for peer relationships (Brown & Larson, 2009). As youth develop, peers play a larger role in their lives. Friendships and romantic relationships become increasingly impactful on relationships both positively (such as encouraging prosocial behavior) and negatively (such as encouraging substance use and delinquent behaviors). Disruptions to these central relationships might greatly negatively impact development. School moves interfere with youth's important relationships. Youth in care may not have access to the same technology that non-foster youth may have, which may not allow youth in care to maintain relationships from a distance using virtual communications. Not only are youth's important relationships forced to end when they change schools, they must establish new friendships. Foster youth may face stigmatization for being in care, for not having up to date technology like other youth, and for being behind in schoolwork because of frequent moves. This may create additional challenges when trying to build new friendships, which are essential for youth to thrive (Brown & Larson, 2009).

Furthermore, during adolescence youth undergo puberty and face additional biological and social changes. The onset of puberty is associated with the likelihood for developing psychopathology, including both internalizing and externalizing behaviors (Sallis et al., 2017). It is possible that hormonal disturbances, such as circulating gonadal hormones, cause mood disturbances (Born et al, 2002). Additionally, adolescents may experience shifting social roles and expectations during and following puberty that might increase stress (Sandberg et al. 2001). Therefore, puberty may be exacerbating the stress

of school, home, and neighborhood changes, which might contribute to increased delinquency.

Lastly, school mobility at later ages has been linked with poor academic achievement (Gruman et al., 2008; Herbers et al., 2013). It is possible that it is harder for older students to catch up to their classmates because curricula become more complex and varying as youth advance in grades. Poor academic achievement, in turn, has been linked with delinquency (Herbers et al., 2013). It is possible that youth who do poorly at school are placed in classes, and therefore become friends with, other students doing poorly in class because of consistent problem behaviors. In this case, peer contagion might lead the foster youth to engage in problem and/or delinquent behaviors.

Youth Characteristics

Race/Ethnicity. Youth characteristics were some of the most robust predictors in the dissertation findings. For example, youth who identified as American Indian or Alaska Native were at additional risk for crossing over and doing so at an earlier age compared to youth of other races/ethnicities. American Indian youth have the highest rate of maltreatment victimization among youth in the United States, with a rate of 15.2 per 1,000 youth (U.S. DHS ACF, 2022). In states that have larger American Indian populations, these disproportionalities are even more apparent. In Minnesota, for example, American Indian youth were 16.4 times more likely to be placed in out-of-home care compared to White youth in 2020 (Minnesota DHS, 2021). Despite the overrepresentation of American Indian and Alaska Native youth in the child welfare system, there is little work that has examined American Indian youth's experiences in care compared to other minority youth, particularly Black and Hispanic youth.

Using a m(ai)cro system perspective, which calls for the integration of the macrosystem and microsystem (Rogers et al., 2021), it is essential to consider historical and current racism within the system to understand findings related to racial disproportionalities. American Indian communities have deep-rooted trauma caused by United States government policies and actions. Until as late as the 1970s, the United States government enacted several policies to attempt to assimilate American Indians into American culture. By the 1970s, approximately 35% of all American Indian youth were separated from their families (Halverson et al., 2002). These youth were placed in institutions such as boarding schools, foster homes, and adoptive homes, where they were stripped of their native culture. For example, they were forbidden to speak their native languages or practice their beliefs and were forced to have their hair cut, which is of important spiritual significance in many tribes. Many American Indian youth during this time never returned to their families. Some died while in boarding schools due to unhealthy living conditions that resulted in disease, and others were sent to live permanently with White families (Halverson et al., 2002).

In 1978, Congress passed the Indian Child Welfare Act (ICWA) to attempt to address these unjust practices. This states specific requirements that must be adhered to in cases involving American Indian and Alaska Native youth. This act requires native youth who are removed from their homes to be placed in homes that reflect their culture and values when possible. Additionally, it requires that tribes be involved in the placement decisions. Tribes are sovereign nations, meaning they have power to make their own laws and have their own court systems. The goal of ICWA was to protect the future of these

nations by protecting their youth's cultural identities and tribal citizenships (Austin, 2009).

Though the act was passed with good intentions, it is rarely enforced as was intended. ICWA is an unfunded mandate, and the responsibility of enforcing it often falls on the tribes, whose members often struggle with a lack of resources and poverty (Halverson et al., 2002). Despite ICWA, American Indian youth are still being removed from their homes at a disproportionately higher rate and are still being placed with non-native families, resulting in disconnect with their families and tribal culture. Work has shown that American Indian youth in care are more likely to report the recurrence of physical, sexual, and spiritual abuse while in care than White youth (Landers et al., 2021). Spiritual abuse is defined as actions that threaten or damage a person's sacred practices or disconnects them from their spiritual resources (Gray et al., 2018). For example, spiritual abuse could include preventing an individual from participating in ceremonies or pow wows or using racial slurs. In Landers and colleagues' study (2021) with a sample of foster youth, over half of the American Indian youth in their sample experienced spiritual abuse during the study period, and the majority of those youth were placed in a non-native home (with only 4% being placed in a native home). Other work has shown that American Indian youth who are connected to their native cultures tend to have more positive developmental outcomes than youth who are not (Whitesell et al., 2009).

In summary, American Indian and Alaska Native youth are more likely to be separated from their families and tribal cultures and experience recurrence of abuse than

White youth, potentially setting them on a pathway to emotional and behavioral problems, and ultimately offending at an early age.

At the Minnesota Social Service Association (MSSA) 2022 conference in Minneapolis, I attended a panel of foster youth discussing their experiences in care. While I cannot disclose specific details in order to respect the anonymity of the individuals who shared, there was one individual whose story perfectly exemplifies much of what is discussed above. They were an American Indian youth who was separated from their tribe and placed in foster care as an adolescent. They experienced over 30 placements before aging out and most of those placements were with white families. They discussed the culture shock of being placed in a white, extremely religious home and the discrimination they received for their own heritage. They were not allowed a voice in deciding placements, but always advocated to be placed in a native home. They experienced many mental health struggles, which were made worse with each placement change with families who did not understand their culture, practices, and beliefs.

It was somewhat surprising that Black youth were not found to be more likely to crossover or crossover at an earlier age compared to non-Black youth. However, Black youth (along with American Indian youth) were overrepresented in both the total sample and the crossover sample. Data from the 2020 census indicates that in Minnesota, 12.4% of the population is Black and 1.1% of the population is American Indian or Alaska Native. In the current study, 29% of the total sample was Black and 21.1% of the sample was American Indian or Alaska Native (United States Census Bureau, 2021). Furthermore, within the youth who crossed over, 28.7% were Black and 27.8% were American Indian and Alaska Native (United States Census Bureau, 2021). This indicates

a severe overrepresentation of these youth in both the child welfare and juvenile justice systems. This might be partially explained by racially biased decision making within the child welfare and juvenile justice systems, as well as structural inequities. For example, results from the study revealed that many youth were removed for parental substance use, but there is a lack of access to community-based services, such as treatment programs, to serve minority neighborhoods (Chipungu & Bent-Goodley, 2004). Furthermore, minority neighborhoods might experience higher levels of policing, which set Black and Brown youth up for being arrested and entering the Juvenile Justice system. Structural changes that may indirectly address these racial disproportionalities in the child welfare and juvenile justice systems and are discussed in further detail in the implications and recommendations section below. It is also important to note that because of the way race/ethnicity was coded, Black youth were not compared to white youth, but to all non-Black youth. Youth who were not Black but identified as another racial/ethnic minority are often subject to the same interpersonal and system biases and racism. Comparing Black youth directly to white youth might have shown different patterns of results.

Lastly, results from the survival analyses indicated that youth identified as Asian and Pacific Islander crossed over, on average, at a later age than youth who were not identified as Asian or Pacific Islander. However, these results were only significant in two of the three datasets using the multiverse approach. Because the finding was not universal, and the small sample size of this group (ranging from 10 – 33 between datasets), this finding is not considered robust. However, it does align with other work that has shown race/ethnicity to be a protective factor in the lives of Asian American youth (Stein et al., 2014), perhaps because they are often protected from the racial

discrimination that other minority youth face (Rivas-Drake et al., 2008). However, it is important to consider how the recent rise in discrimination and discriminatory acts toward Asian Americans since COVID-19 (Wu et al., 2021) might impact future youth in care.

Sex. As hypothesized, male youth were more likely to crossover and tended to crossover earlier than female youth in all three datasets. There has been ample work demonstrating that males are more likely to be in the juvenile justice system than females, and the majority of the crossover literature specifically examines male populations (de Carvalho & Chima, 2020). Males are more likely than females to be rated as demonstrating externalizing behaviors beginning in early childhood and work has shown that males exhibit more externalizing behaviors even before elementary school (Bongers et al., 2004) and this difference continues to increase over the course of childhood until adolescence (Lahey et al., 2000). Additionally, males are less likely than females to exhibit self-control and empathy at very early ages, which may partially contribute to their increased engagement in externalizing behaviors (Eme, 2016).

It is also possible that very young males that are diagnosed with externalizing disorders (such as ODD, CD, and ADHD) or frequently exhibit externalizing behaviors that are seen as disruptive become a part of the cycle discussed above in which youth are punished for their externalizing behaviors rather than treated for them. This exacerbates the problem rather than alleviates the problem, ultimately potentially leading to serious, offending behaviors. Males are more likely to be introduced into this cycle at a younger age, which may contribute to the younger offending pattern seen in the study results.

Furthermore, males who display externalizing behaviors may be more likely to be labeled as "trouble" children at home or in the classroom. This label may cause stigma that leads to youth's isolation from "good" children and socialization with other youth with problem behaviors. This peer group might increase youth's likelihood of engaging in problem behaviors as part of the group's social norms and expectations that these youth will not be successful.

Special Education Status. Slightly over half of the youth in the current sample were identified as receiving special education services. This is much larger than the percent of youth receiving these services in the general state population (16.7% of youth were enrolled in special education services in 2020; Annie E. Casey Foundation, 2020). Furthermore, approximately 65% of crossover youth were identified as receiving special education services. This aligns with previous work (Blakeslee et al., 2013; Kincaid, 2016; Powers et al., 2012) demonstrating that youth with disabilities are particularly vulnerable to both entering the system and subsequently entering the juvenile justice system.

While special education status did not predict the likelihood of crossing over, it was associated with the timing of crossover so that youth who had been identified as receiving special education services tended to crossover earlier. Post-hoc analyses revealed that emotional and behavioral disabilities were driving this effect. Crossover youth who were identified as receiving special education services were by far more likely to have this type of disability compared to other types of disabilities. There is no known work examining youth disability and timing of crossover. As discussed above, males are more likely than females to exhibit externalizing behaviors early on. They are also more likely than females to be diagnosed with an emotional or behavioral disability (Young et

al., 2010). Perhaps, as discussed above, males with externalizing behaviors (commonly characterized in emotional and behavioral disabilities) are forced into a cycle in which their behaviors are met with punishment rather than support that exacerbates, and doesn't treat, those problems which ultimately leads to early delinquency. Treatment plans for youth with emotional behavioral disabilities might have the goal of reducing the problem, but in reality teachers and administrators often must immediately halt behaviors that are putting other youth in the classroom at risk (for example, a child throwing a tantrum might be removed from the school and sent to the principal's office; a teenager who initiates a fight might be expelled). While this form of positive or negative punishment might meet schools' immediate needs, ultimately might not reduce the risk of the original problem behavior recurring. For many youth with emotional and behavioral disorders, punishments for problem behavior such as alternative school, expulsion, or being removed from the normal classroom and placed in an Emotional Behavioral Disturbance (EBD) classroom upon a misbehavior might not effectively prevent future behaviors but instead lead to increased risk for repeating problem behaviors and for these behaviors to get more serious in nature.

LCA – Patterns of Crossover Risk

Because of interest in uncovering patterns in risk and protective factors for certain groups of youth, an exploratory latent class analysis was conducted for the All and Average datasets (the First dataset was not analyzed using this technique due its much smaller sample size). Based on previous work with crossover youth (Rebbe et al., 2017) and using Minn-Link CPS data (Waid et al., 2021), it was expected that 3 distinct profiles of risk would emerge, likely indicating groups of youth with low, medium, and high

levels of risk factors. However, results from the LCA models in the current dissertation were not consistent with these expectations. The best fitting models produced difficult to explain classes that did not align with previous work, particularly for the All dataset.

For example, the All dataset produced a 5-class model in which the classes were predominately differentiated by age at first crossover and placement instability. These differences were perhaps too nuanced between groups to be meaningful. For example, all classes in the dataset had a fairly high probability of having experienced non-relative care while no class had a high probability of having been removed for sexual abuse. This is likely because most of the sample had experienced at least one placement in non-relative care and few were removed for sexual abuse (compared to other types of abuse). Therefore, because there were so many groups, individuals who had rarer experiences ended up spread out amongst several groups instead of falling into a single group. In sum, the nature of this data simply did not lend itself well to a meaningful LCA.

In the Average dataset, the LCA produced a more understandable and less nuanced 2-class model. These classes were also primarily differentiated by age at first placement, time in care, and placement instability. For example, the *Early Movers* entered care on average at 3.13 years old, spent on average 184.09 weeks in care, and moved on average 7.49 times. The *Late Stayers*, on the other hand, entered care at 8.83 years old, spend on average 75.69 weeks in care, and moved on average 3.06 times. The *Late Stayers* also was a much larger class, with 731 members compared to 248 in the *Early Movers* class. These differences, however, are the most meaningful differentiations that were established by the LCA. The classes did not differ based on likelihood of experiencing care characteristics, which was a primary goal and expectation of the

analysis because, as discussed above, the classes have similar probabilities of experiencing care characteristics for all classes, with a couple of exceptions. For example, youth in both classes are equally likely to have experienced removal because of sexual abuse and for child reasons. The biggest difference in placement characteristics between the classes is probability of experiencing non-relative care (which is higher for the *Early Movers*) and removal from the home for a parent reason (also higher for *Early Movers*). While perhaps this 2-class model is slightly more meaningful than the 5-class model that was produced with the All dataset, it still does not to offer much meaning as it is difficult to interpret and understand differences between the classes. In sum, neither the All nor Average dataset produced clear profiles of risk or protection as was expected based on previous work.

Using the Multiverse Approach

Using the multiverse approach shaped the current dissertation in many important ways and particularly impacted the interpretation of study findings. This approach greatly increased the robustness of the findings, and confidence in interpreting those findings. Results that were similar across datasets, and particularly across all three datasets, were interpreted with confidence. On the other hand, this approach introduced reluctance when interpreting results not found across all three datasets, which may have been mistakenly interpreted as a significant result if analyses were conducted using only one dataset.

There were some variables that behaved similarly across all datasets, such as the association between both child reason for removal and identification as American Indian or Alaska Native and the overall likelihood and timing of crossover. For these findings, despite differences in coding, analyses across datasets revealed similar results. Using the

multiverse approach to determine universal findings across the datasets greatly increased confidence in the strength of those results. However, many findings in the dissertation differed between datasets, as discussed above. One of many examples, was the finding that placement instability was associated with decreased risk of crossing over just in the All dataset. As discussed above, this finding is likely just an artifact of how the data were coded rather than something that, in reality, was associated with crossover. Non-crossover youth were coded as having more time in care because they were information was coded for a longer period of time. This influenced all time-related variables, including placement instability, time in care, and possibly even CPS involvement.

The First dataset generally had fewer significant findings and had some findings that were not significant in the other two datasets, such as the protective function of non-relative care on the overall risk of crossing over and a later timing of crossover. The First dataset had the earliest cutoff date for information inclusion, meaning that a great deal of information that was included in the All and Average datasets were not included in the First dataset. Information included in this dataset was exclusively experiences that happened earlier in care (prior to age 10). This is not the ideal method to answer the current dissertation's research questions and greatly minimized the sample size because it included only youth who entered care prior to age 10. However, this method of coding could be useful to answer future research questions related specifically to how experiences early in care may uniquely relate to crossover.

The Average dataset proved to be the most ideal of the three datasets. It maximized the sample size and information utilized because it allowed for the inclusion of experiences up to age 15 and allowed for the measurement of adolescent school

mobility. It also better equalized the time variables between the crossover and non-crossover youth, allowing these two groups to be more comparable.

In sum, the multiverse approach was an excellent way to establish robustness of results. Using this approach also allowed for more thoughtfulness about how coding can greatly influence the results. If only one coding method were employed in this study, it would likely not have been considered how the coding may have impacted the interpretation of significant findings. Relevant recommendations for researchers are discussed in the following section.

Recommendations and Implications

Findings from the current dissertation have implications for many systems, including the child welfare, court, and education systems, as well as for researchers and overarching policy development and/or refinement. Implications and recommendations are discussed for each system and area of focus, followed by a discussion about the importance of system integration.

Child Welfare System: Move Resources Upstream, Provide Specific Resources to Crossover Youth, and Other Policy Recommendations

Youth in the current study all entered the child welfare system before entering the juvenile justice system, though that this is not always the case for youth in care. Therefore, it is possible that services and supports provided to youth and their families while in the child welfare system could have reduced the likelihood of the crossover taking place (33% of the current sample crossed over). Key results from the current dissertation included the findings that youth who were removed for a child reason or

physical abuse were at increased risk of crossover. Clearly, there was a missed opportunity for intervention by child welfare and child protective services. For youth removed for these reasons, it may be important to ensure that they have appropriate treatment plans in place that promote youth and family health and wellbeing, allowing the youth to ultimately have fewer placement changes, obtain reunification and permanency, and abstain from crossing over into the juvenile justice system. It is also possible that youth have already established patterns of behavior that leads to offending before entering the child welfare system. In this case, it is vital to provide preventive services for children and families upstream. This could be in the form of home visiting programs that include implementing services to young children and families that may prevent the development of externalizing behaviors, or universal or targeted programs for young children implemented in schools.

Furthermore, because crossover youth are also at particular risk for recidivism during adolescence and into adulthood (Herz et al., 2010), it is essential to implement tools that are designed specifically for crossover youth to improve their likelihood for healthy outcomes. For example, the Crossover Youth Practice Model (CYPM; Haight et al., 2016) aims to minimize the involvement of foster youth in the juvenile justice system by improving coordination and communication between professionals in the child welfare and juvenile justice systems, providing individualized intervention, and increasing family engagement (Cho et al., 2019). This model has been shown to effectively reduce youth's likelihood of re-offending (Haight et al., 2016). Another example is Project Confirm (Conger & Ross, 2006). This program targets foster youth who have been arrested by 1) notification by a juvenile justice officer to the program when a youth has been arrested to

determine if that youth is in foster care, 2) if the youth is in care, connecting with the youth's case worker, and 3) guiding youth's case workers or other child welfare representatives through the court process. This program has been shown to decrease disproportionalities in pre-adjudication detention between foster and non-foster youth (Conger & Ross, 2006). Though these programs have proven effective at improving crossover youth outcomes, they are designed to reduce foster youth involvement in the juvenile justice system *after* they have already become involved. No known programs are designed to help prevent foster youth from becoming involved with the juvenile justice system. Program development can be informed by results from the current study by understanding which risk factors might predict onset (and especially early onset) of delinquency. For example, as discussed above, preventive programs can target youth removed for child reasons or physical abuse *before* any major problem behaviors arise.

Findings of the current study emphasize the additional risk faced by American Indian and Alaska Native youth in care compared to youth of other races/ethnicities in care. As discussed above, though ICWA has been in place since well before the study period, it is often not properly enforced. Minnesota has some of the worst disparities in child and family outcomes for individuals of color. Myers and Ha (2018) have documented that Minnesota has one of the largest racial disproportionalities in almost every measure of social and economic wellbeing (also known as the "Minnesota Paradox"; Nanney et al, 2019). Child welfare agencies need to prioritize enforcing ICWA policies, such as involving tribes in child placement decisions and prioritizing placing native children in native homes. The burden cannot just fall onto the tribes themselves. This is an essential first step in helping to alleviate these disproportionalities. To help

address this, Minnesota established the Tribal Training and Certification Partnership at the University of Minnesota – Duluth that aims to improve outcomes for American Indian youth and families through culturally- and competency- based training for child welfare workers and supervisors.

Additionally, the child welfare workforce should recruit and retain workers from diverse backgrounds, including native backgrounds, and promote those workers to supervisor and leadership positions. Having a workforce that represents the youth and families it serves is necessary to understand the unique needs of those communities, provide those communities a voice, and eventually eliminate the structures currently in place that create these disproportionalities in the system (Piescher et al., 2018).

The Family First Prevention Services Act (Family First) is a major piece of federal legislation that is changing the way child welfare services are provided around the nation, including in Minnesota. Family First was passed in February 2018 and for many states, funding has still not been implemented (including in Minnesota). Therefore, while the youth in the current dissertation sample were not impacted by this legislation, these changes will impact current and future youth and families. An effective way to reduce youth's risk of crossover is to *prevent* out-of-home care experiences. The overarching premise of this act is to do just that.

Family First aims to prevent out-of-home placements and when placements are necessary, to encourage the use of foster homes (rather than residential settings) as the primary placement setting. One of Family First's primary goals is to reduce inequities in the system, some of which develop because of disproportionalities in congregate care. Family First limits the use of congregate settings by establishing new requirements for

the use of those settings. The current study found residential care to increase risk for crossover, so this aspect of the act could be particularly important for improving youth outcomes. Family First also aims to preserve family connections when residential placements are deemed necessary.

Furthermore, Family First funding can be used to address racial disproportionalities by the provision of additional prevention services. One example is using Family First funds to provide economic supports for youth and families. For example, Kentucky is currently using funding from Family First to provide $1,000 per family in flexible funding. This money can be used toward a variety of needs, including transportation costs, household needs, and rent. Reducing economic hardship, which is a known factor contributing to rates of abuse and neglect (Bywaters et al., 2016; Pelton, 2015), may particularly benefit Black, Brown, and Indigenous families, who are often suffering the most from these economic hardships. It is important for Minnesota to develop a plan to utilize Family First funds to reduce abuse and neglect.

Beyond using funding from Family First, there are other ways child welfare policy can address racial disproportionalities within the system. Many states have recognized that some disproportionalities within the child welfare system stem from the fact that Black, Brown, and Indigenous families are more likely to be experiencing poverty (U.S. Census Bureau, 2020), and these youth are more likely to be removed from the home for neglect than white families and youth (Roberts 2014). Kentucky has attempted to address this in a bill (KY Senate Bill 8) passed in March 2022 that re-defines neglect to further differentiate it from poverty. The bill lists a similar definition for neglect as other states, including failure to provide care, food, clothing shelter,

education, supervision, and medical care, but with the inclusion of the line "when financially able to do so or offered financial or other means to do so" (Kentucky Senate Bill 8). In this way, Kentucky is hoping that youth will be provided with services, such as resources provided by the flexible spending program described above and avoid charges of neglect and subsequent removal from the home due to poverty.

Additionally, in 2020 New York State addressed racial disproportionalities in removal by implementing a blind removal process aimed to reduce the number of racially diverse youth being unnecessarily removed from their homes. Oftentimes, there is a period of time between when a case worker decides if a home removal is appropriate and the actual removal (though if an immediate removal must happen, then this process is skipped). This process requires that during that period, cases are reviewed by a highly trained committee with identifying information removed. The redacted information contains any details that would indicate the race, religion, or neighborhood of the family. After the initial removal decision, this information is added back in to inform further case decisions. New York State has reported significant reductions in disproportionalities in home removals for Black youth every year since implementation of this process in 2017 (Casey Family Programs, 2021). While this strategy has been proven effective, many critics still point out that information about families' cultural norms and values might be helpful and necessary to make a more equitable decision related to home removals. Further, Baron and colleagues (2021) found that the blind removal process does little to actually reduce disproportionality, partially because there are already small racial disproportionalities in the removal decision (and that disproportionalities exist more prominently in other parts of the process).

Lastly, it would be remiss to not acknowledge that all of the above suggestions would put additional burden on a child welfare workforce that is already severely overstrained. The child welfare workforce is understaffed, underpaid, and over stressed (Leake et al., 2017; Lizano et al., 2021). Child welfare turnover rates are much higher than in other fields, with a national average turnover rate of approximately 30% (Casey Family Programs, 2017). When a caseworker leaves their position, not only are their skills and expertise lost, but also comes with a cost to the child welfare agency between 30-200 percent of that employee's salary (Casey Family Programs, 2017). To be able to have the bandwidth to implement crucial practices that would improve the child welfare system, workforce needs must be addressed. Workers should receive higher pay, better benefits, and resources to cope with secondary traumatic stress, such as access to spaces to debrief about cases, guided meditations at work, and calming rooms to use after difficult family visits (Griffiths et al., 20190

Court System: Increase Trauma-informed Responses

One of the primary challenges that courts face is supporting youth who enter the juvenile justice system while still holding them accountable for their actions and preventing future offenses. The adult criminal justice system if often criticized as not being rehabilitative, though that is supposed to be one of its primary goals (Benson, 2003). Since the 1970s, rehabilitation has been forced to take a back seat as prison populations have risen exponentially (Benson, 2003). This has led to a lack of resources within the prison system and a mindset that the purpose of prison is punishment rather than treatment. While the criminal and juvenile justice systems are distinct court systems, they share similar structures and processes and the juvenile justice system

(unintentionally) serves as a pipeline to the adult criminal justice system, meaning that individuals often begin in one and flow to the other. There are important changes that could help prevent youth in care having repeated contact with the juvenile justice system, which may ultimately reduce their likelihood of continuing into the adult criminal justice system.

First, court systems should inquire about previous trauma histories for adolescents in the court system, and particularly those who are initially entering the system. Judges and county attorneys should incorporate this knowledge into their decisions about sentencing. Youth with trauma histories, and particularly physical abuse, may benefit from receiving treatment services, no matter the adjudication status of their alleged offenses.

Also, findings from the dissertation support an alteration of court response to juvenile offenses. As discussed at length in the above sections, it is essential for youth who are displaying aggressive, externalizing behaviors to be met with treatment rather than punishment. Most individuals would agree that youth who self-harm, attempt suicide, or display other internalizing symptoms should be treated rather than punished, and would also concur that intervening early is important in keeping these youth healthy. Yet, many individuals do not perceive youth who display aggressive behaviors in the same way, though these behaviors are also symptoms of psychopathology that can be alleviated with appropriate treatment and are also responsive to early intervention strategies (Tully & Hunt, 2016). The justice system is designed to wait to intervene until youth develop serious problem behaviors, and when it does intervene, it is often a

punitive intervention. The system also disproportionality negatively impacts male youth of color, as is seen in the findings of the current dissertation.

It is crucial to increase resources, supports, and understanding of externalizing behaviors to promote the use of healthy interventions to break this cycle early. Youth are punished not just by the court system, but also preceding court involvement. Young children are scolded by their parents for tantrums and aggressive behavior, elementary school children are put in time out for scratching or biting a peer, older youth are expelled or sent to detention for fighting in the hallways. And eventually, behaviors become serious enough to be brought to the attention of the court. Not only does the court need to recognize that this behavior is likely a result of psychopathology, and potentially rooted in trauma and involvement in an unstable and stressful child welfare system, but the public (including parents and other adults responsible for youth) must recognize this as well.

In sum, judges, county attorneys, and the general public, need to understand that punishing behavior may ultimately lead to an increase, rather than decrease in those behaviors. Particularly for youth who are having their initial contact with the system, sentences should involve treatment aimed to rehabilitate youth rather than punish youth, which may ultimately lead to healthier outcomes for the youth.

School System: Provide Resources and Support to Foster Youth

Results revealed that school mobility specifically during adolescence was associated with increased risk of youth's crossover. This finding emphasizes the important role that school systems may play in foster youth's outcomes. First, it is important for school workers (administrators, teachers, staff) to recognize that

characteristics of foster youth's trauma histories and placements might put them at risk of crossing over. Particularly for adolescents who have moved placements, and therefore schools, many times, youth may have problems acclimating to a new school, understanding curriculum, and establishing friendships. As soon as these students matriculate, additional supports could be helpful in promoting their successful adjustment. For example, foster youth could be assigned a school counselor to check in with them on a consistent basis. Counselors could discuss school progress and emotional wellbeing. If needed, counselors could also refer youth to other treatment programs. Though many schools have problems with funding school counselor positions (Cronin, 2016), these positions may play a vital role in promoting positive outcomes for youth, particularly those in care.

Results also showed that youth receiving special education services tended to cross over earlier than youth who did not, and this was true particularly for youth diagnosed with an Emotional Behavioral Disorders (EBD). It is essential to delay crossover because youth who cross over earlier are more likely to become chronic offenders (Jolliffe et al., 2017a) than youth who crossover later. When developing individualized education plans (IEP), it is important for educators to consider how to consistently respond to behavioral problems with a treatment-focused approach rather than a punitive approach. For example, a youth with conduct disorder (CD) may spend a significant portion of their time working on social and interpersonal skills as well as receiving cognitive-behavioral therapy (CBT) from a licensed professional, rather than being sent to detention or expelled following a major behavioral problem. While this can be challenging, particularly if youth's behaviors are disturbing other youth in the

classroom, it is essential to provide funding to schools so they can have intensive services for youth with disabilities. Even though this approach may be more expensive and demanding in the short-term, ultimately students will have better outcomes if their disorders are appropriately treated.

Researchers Using the Multiverse Approach

Researchers can learn from the multiverse approach utilized in the current study. Because of the multiple benefits of using the multiverse system discussed throughout the paper, it is recommended that researchers utilize this approach when possible. Despite its limitations, such as being time consuming, it is a useful approach that has not been widely utilized in psychology. Furthermore, as researchers consume other research, they can better understand that each small decision a researcher makes can determine if that finding is significant, and even the direction of the finding. It is vital to recognize this as researchers consume and replicate work.

For researchers using a similar study design as is used in the current dissertation, if they do not have the time and resources to conduct a multiverse analysis, it is recommended that they use an approach similar to the one used with the Average dataset in the current study. As discussed above, this approach proved to be the one that allowed for the best comparison between crossover and non-crossover groups for time dependent variables. It also maximized the sample size, because almost all youth in the sample had entered care by the cutoff date of that dataset. Researchers are encouraged to consider how coding might impact comparisons and carefully make decisions that alleviate potential issues.

State and Federal Policies: Decrease Risk of Maltreatment by Providing Services to Families Upstream

There are policies beyond those in child welfare that can have a positive impact on foster youth and help prevent youth from entering the juvenile justice system. Specifically, policies that move services upstream are crucial in preventing child abuse and neglect and initial removals from the home. For example, Puls and colleagues (2021) found that major benefits programs such as providing housing, childcare assistance, refundable earned income tax credits (such as Child Tax Credit and the Earned Income Tax Credit), medical assistance programs such as Medicaid, and providing cash directly to families were associated with decreases in child maltreatment. Specifically, the study found that an increase in $1,000 in annual spending on these programs per person in poverty predicts 181,000 fewer children reported for maltreatment, 28,500 fewer confirmed cases of maltreatment, and 4,100 fewer children entering the foster care system (Puls et al., 2021). This shows that overarching federal policies that are targeting family wellbeing, and not even directly child welfare, are positively impacting youth outcomes. This is an excellent example of how the macrosystem is not separated by multiple levels as Bronfenbrenner originally posited (1979). Rather, policies directly impact the way families are able to live, including putting money directly in the hands of families in need, and they make a large positive impact.

President Biden's American Families Plan also proposes to continue economic relief, such as the tax credits, that were established in the American Rescue Plan and extend reforms to invest millions in early education. Specifically, President Biden has proposed the creation of a free, high-quality preschool for all three- and four-year-olds.

Universal pre-k has been shown to greatly benefit youth and families. For example, evaluations conducted by the Center for Disease Control and Prevention (CDC) have shown that children enrolled in preschool with parental support had a 52% reduction in substantiated reports of child abuse and neglect (CDC, 2019). Furthermore, universal pre-K has been directly associated with decreased juvenile crime (Karoly & Bigelow, 2005). It is possible that universal pre-k may reduce risk factors such as parental stress, social isolation, and poverty. It is essential for children to have a quality, safe place to spend part of their days so their parents can find and maintain jobs. Universal pre-k shows much promise in promoting social and cognitive development in young children and preventing youth's exposure to trauma, entrance into foster care, and ultimately delinquency. Though it is extremely pricey ($6,600 per participant per year in President Biden's proposal; Lynch, 2021), it will ultimately be socially and economically advantageous. There would be fewer incidents of child abuse and neglect, which reduces spending in child welfare, and youth are less likely to interact with the juvenile and criminal court systems, further reducing public costs (Lynch, 2021).

System Integration: Child Welfare Collaborations with Other County Systems

Additionally, it is important that the systems crossover youth travel through are more connected to better serve the unique needs of these youth and their families. Specifically, connecting court, law enforcement, and school systems to child welfare is essential. Wrap-around care and systems of care approaches have been widely recognized as effective for families who interact with multiple county systems and/or have complex needs (Bruns et al., 2015; Lyons & Rogers, 2004). For example, Anoka County (just north of Hennepin County) offers the Partnerships for Family Success (FPS) program,

which provides intensive case management services to families who are involved with at least two county systems (e.g., child welfare, juvenile and criminal justice systems, mental health, chemical dependency; Karatekin et al., 2014). The case manager works closely with the family to develop a case plan that addresses the needs of the family. The case manager also attends all IEP meetings and other service staffing meetings for the child and incorporates any CPS case plans into the FPS plan. One of the primary goals of this program is to integrate services to ultimately reduce families' dependency on government programs. Karatekin and colleagues (2014) conducted an evaluation of the PFS program and found that families in the program had a reduction in the number of child maltreatment reports accepted by CPS and out-of-home placements. Integrative services such as this may play a beneficial role in reducing/preventing out-of-home placements, helping youth removed from the home reunify and reach permanency with their families, and provide services to youth that might prevent them from interacting with the juvenile justice system.

Beyond programs using a case worker to integrate care, it could also be effective (though more costly) to directly integrate systems. For example, because removal for parental substance abuse is one of the leading causes of removal, it could be helpful to create a family drug court system that is integrated with child welfare. This could allow for the creation of a specialized program for parents that provides treatment, rather than incarceration, for individuals with substance use or mental health issues. This system could also provide support to parents as they recover and regain custody of their children. For example, family-based residential treatment programs exist that allow families to remain together while parents receive treatment for substance use disorders. Work from

the Casey Family Programs has found that mothers in these programs are more likely to complete treatment and remain sober 6-12 months post-treatment compared to mothers who were placed in a traditional residential program (separated from their children, Casey Family Programs, 2019). To create a long-term solution, it is important to take compassionate and treatment-oriented approaches that involve supporting parents and helping them regain and maintain a healthy life in which their children can be involved. A similar program could be created for youth removed for abuse and neglect or other parent reasons, with the goal of treating parents and families and keeping parents connected to their children while they are in care when possible.

Foster youth can be removed from the home by law enforcement when they deem that the conditions endanger youth's health or welfare (MN Statute § 260C.175). When this happens, youth are typically placed in temporary, emergency settings. A social worker then becomes involved to decide if the youth should remain in care or return home. As a way to reduce emergency placements, social workers could accompany law officers to homes where youth are present. This way, instead of the officer making a decision about removal, a trained social worker would be able to evaluate the situation and make a decision. As stated previously, preventing home removals, and the trauma that comes with that removal, may be critical in improving outcomes for all youth, and particularly for racially diverse youth.

Though the child welfare and education populations largely overlap, these systems often do not communicate. One important finding from the current dissertation is that school mobility is uniquely associated with increased risk of crossover. It is important that school stability should be prioritized when making decisions about youth's

placements, which is required by the Fostering Connections Act (discussed above). Furthermore, educators often do not understand the child welfare system and may not know how to address related issues, such as knowing who has the right to make decisions related to youth's education (e.g., biological parents or foster parents). It is essential for schools to have at least one person in each district who has an in-depth knowledge about the child welfare system and can guide other teachers when issues arise. The Fostering Connections Act requires child welfare agencies to support the education needs of youth in out-of-home care, so child welfare workers may be able to provide support to teachers who are unfamiliar with the system. Additionally, teachers may not know when one of their students enter the foster care system. One confidential source within a school district could be informed of which youth in the district are in foster care, and they could share that information to whomever needs it. Treehouse for Kids, a non-profit organization in Washington state, aims to advance equity and racial justice for youth in foster care and education systems by providing these youth with supports and opportunities that help promote wellbeing. They provide youth resources in the form of school supplies, books, and clothes, as well as funding for school fees, school uniforms, college application fees, and extracurricular activities and summer camp fees. Treehouse also works directly with schools and social workers to remove barriers to success and advocate for the youth. This program exemplifies how child welfare and the education system can unite to improve outcomes for youth in both of these systems, and similar programs should be implemented around the nation.

Limitations

Findings of the present dissertation should be interpreted in light of study limitations. First, while administrative data provides valuable information about a vulnerable population that might not otherwise be obtained, this data lacks rich context and details. Youth's experiences are reduced to a series of coded variables, which might not accurately reflect their true lived experiences. Additionally, the study is limited to Minnesota during the study period and may thus not be generalizable to other states or time periods. Furthermore, the measurement of several variables in the study were limited. For example, many of the variables included in the study are binary, such as removal reasons and placement types, simply indicating if that experience ever happened. While other ways to represent these variables were considered (such as percentage of time in each placement type), this method is commonly used in the literature, some of the analytic techniques utilized in the dissertation required binary or categorical variables (e.g., survival analysis and LCA), and results did not greatly differ between a continuous versus binary representation of the data.

Another example is the measurement of the youth characteristic variables. Youth were required to be identified as male or female by the school or child welfare systems, with no non-binary (or other) gender identification options. Also, in the school system, youth were only able to be identified as one race/ethnicity each school year (or at each school placement during each school year). Therefore, youth who identified with more than one race/ethnicity were forced into one category. To attempt to alleviate this issue, every race/ethnicity that youth were identified as throughout all school years and school moves were included. Therefore, many youth were coded as having multiple races/ethnicities. When faced with this problem, many researchers select youth's most

recent race/ethnicity identification, with the assumption that data become more accurate over time. There is no perfect method because the initial measurement of this information from schools is flawed. The method employed by the current dissertation attempted to best capture an accurate representation of youth's identities, despite this measurement challenge.

Furthermore, because child maltreatment was only measured by removal reasons, there was likely maltreatment that went undetected by child welfare systems, or that occurred but didn't result in a removal. Including CPS involvement as a covariate was intended to represent reports of abuse and neglect that were made but did not lead to a removal, but it does not measure unreported abuse or include measures of type or severity of maltreatment, both of which might impact risk and timing of crossover. Similarly, crossover data relied on court records. Local law enforcement uses informal diversion by not arresting all youth suspected of committing a delinquent act, and formal diversion programs exist that may have impacted youth in the current study. However, these data are not collected or stored in a centralized manner and are therefore impossible to obtain on a statewide scale. Data infrastructures should be improved to include this data that could be important for Juvenile Justice practice and policy implications.

Additionally, causal inferences cannot be made from study findings. Findings only show associations with risk, meaning that though one can posit that factors are associated with increased or decreased risk, it cannot be said that a factor causes increased or decreased risk. This is an important limitation to acknowledge when work may be used to inform practice and policy. Findings from the current study may be used

to develop intervention designs that might be more able to determine causality, though even experimental designs are still limited in their ability to determine causality.

Lastly, most administrative data systems are designed to focus on risk rather than protective factors, which limited the inclusion of protective factors in the current study. Therefore, most study findings focused on what promoted, rather than reduced, risk. There likely exists unmeasured protective factors, given that the majority of youth in the current study were resilient (i.e., most youth did not crossover following entry into the foster care system).

Future Directions

There are many potential future avenues to continue work on this important topic. Though the current study is able follow youth until their 18th birthday, it would be valuable to follow youth as they continue with extended foster care, age out of care, and on into adulthood to examine potential associations with out of home care characteristics on criminality in adulthood. Additionally, future work could examine the mechanisms of increased risk of crossover. From previous work and the current study, it is known that some youth are at increased risk for crossover, but it is still unclear what is driving that risk. For example, future work could better understand why youth removed for physical abuse are at additional risk by analyzing mediating factor, which could examine the role of placement types and psychopathology among other things. Lastly, future work should develop, implement, and evaluate programs and strategies that could help reduce crossover risk for youth in care. It is essential for programs to intervene with youth and

families early to help prevent involvement in child welfare and juvenile justice systems and promote wellbeing.

Conclusion

Youth in out-of-home care are at increased risk for crossing over into the juvenile justice system and do so, on average, earlier compared to youth who have not been in care. Though the foster care system was designed to promote youth's development, ample work has established that many aspects of the system actually increase rather than decrease risk. The current study established that multiple out-of-home care factors, such as placement in a residential setting, removal for physical abuse or a parent or child reason, and school mobility during adolescence were associated with increased risk or earlier timing of crossover. Additionally, the study revealed disproportionalities in crossover based on youth characteristics, and specifically found that American Indian/Alaska Native youth, male youth, and youth with disabilities were at particular risk for crossover and/or earlier crossover. Future work should continue utilizing large, administrative datasets, as well as other methods to produce richer datasets, to examine out-of-home care and crossover experiences within this vulnerable population. Ultimately, it is imperative for professionals from a variety of backgrounds (e.g., child welfare, juvenile justice, education, research) to unite to work towards the goal of helping vulnerable youth who are placed in the hands of the state to help promote healthy development to the greatest extent possible.

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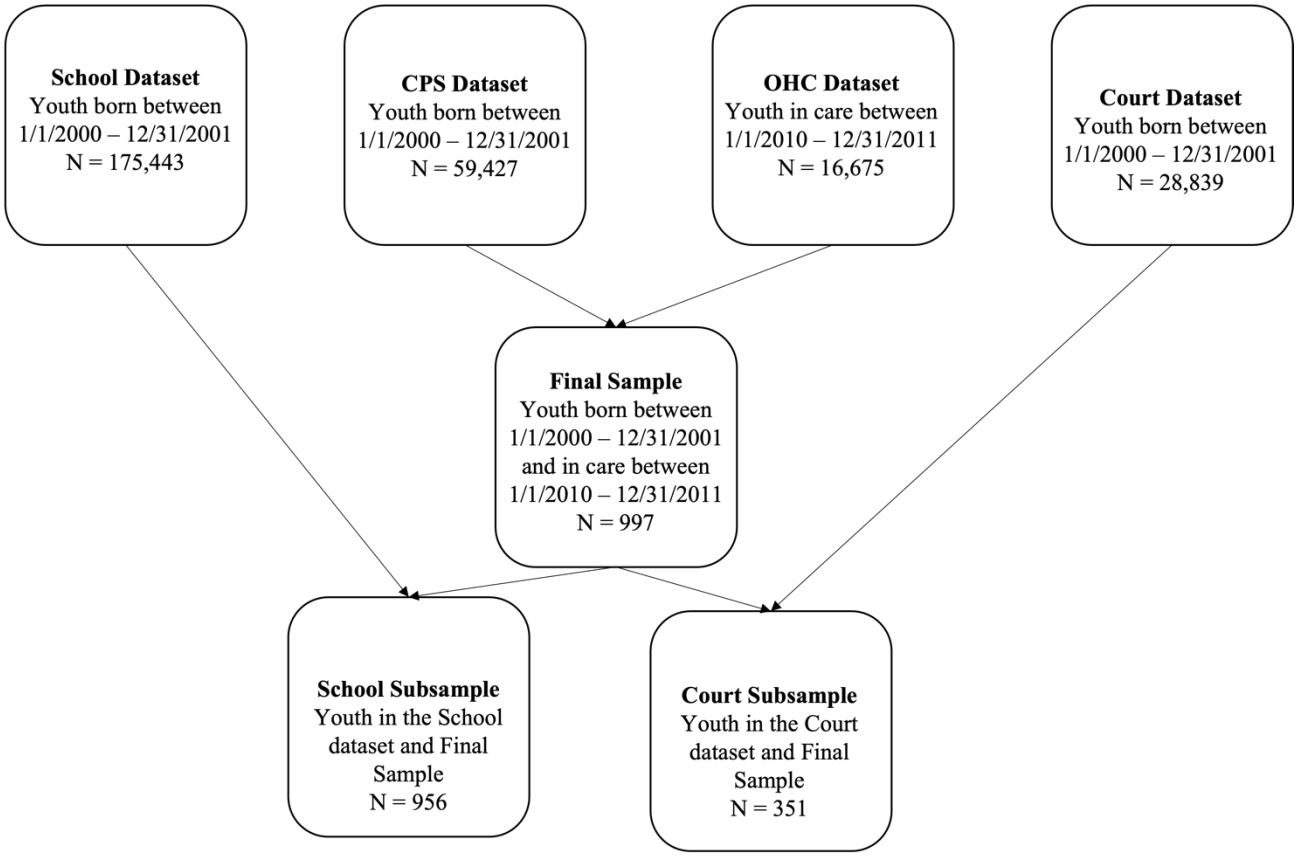
Figure 1. *Description of Sample Creation through Matching Process*



Note. CPS = Child Protection Services; OHC = Out-of-home care; CPS and OHC data from the Department of Human Services (DHS) Social Service Information System (SSIS); School data came from the Minnesota Department of Education (MDE) Minnesota Automated Reporting Student System (MARSS)

Table 1. *Description of Study Variables*

Variable Origin	Variable Name	Description	Use of Variable	Type of variable
Court				
	Crossover	Was the youth ever charged with an alleged offense in juvenile court between ages 0 and 18? (yes/no)	Dependent variable in RQ 1	Binary
	Age at Crossover	Age when youth committed first alleged offense	Descriptive variable	Continuous
	Number of Unique Court Cases	Sum of unique court cases youth experienced in juvenile court between ages 0 and 18.	Descriptive variable	Continuous
	Charge Type of First Alleged Offense	5 binary variables representing the charge of youth's first, most severe charge.	Descriptive variable	Binary
	Juvenile Petty Offense	Was the youth's first charge a juvenile petty offense? (yes/no)		
	Petty Misdemeanor	Was the youth's first charge a petty misdemeanor? (yes/no)		
	Misdemeanor	Was the youth's first charge a misdemeanor? (yes/no)		
	Gross Misdemeanor	Was the youth's first charge a gross misdemeanor? (yes/no)		
	Felony	Was the youth's first charge a felony? (yes/no)		
	Charge Type of Any Offense	5 binary variables representing the type of any charge a youth received	Descriptive variable	Binary
	Juvenile Petty Offense	Was the youth ever charged with a juvenile petty offense? (yes/no)		
	Petty Misdemeanor	Was the youth ever charged with a petty misdemeanor? (yes/no)		
	Misdemeanor	Was the youth ever charged with a misdemeanor? (yes/no)		
	Gross Misdemeanor	Was the youth ever charged with a gross misdemeanor? (yes/no)		
	Felony	Was the youth ever charged with a felony? (yes/no)		
	Adjudication of First Alleged Offense	5 binary variables representing the type of youth's first charge and if they were adjudicated for that charge	Descriptive variable	Binary
	Adjudicated for Juvenile Petty Offense	Was the youth adjudicated for their first charge with a juvenile petty offense? (yes/no)		
	Adjudicated for Petty Misdemeanor	Was the youth adjudicated for their first charge with a petty misdemeanor? (yes/no)		
	Adjudicated for Misdemeanor	Was the youth adjudicated for their first charge with a misdemeanor? (yes/no)		
	Adjudicated for Gross Misdemeanor	Was the youth adjudicated for their first charge with a gross misdemeanor? (yes/no)		

	Adjudicated for Felony	Was the youth adjudicated for their first charge with a felony? (yes/no)		
	Adjudication of Any Alleged Offense	5 binary variables indicating if the youth was every adjudicated for that charge.	Descriptive variable	Binary
	Adjudicated for Juvenile Petty Offense	Was the youth every adjudicated with a juvenile petty offense? (yes/no)		
	Adjudicated for Petty Misdemeanor	Was the youth every adjudicated with a petty misdemeanor? (yes/no)		
	Adjudicated for Misdemeanor	Was the youth every adjudicated with a misdemeanor? (yes/no)		
	Adjudicated for Gross Misdemeanor	Was the youth every adjudicated with a gross misdemeanor? (yes/no		
	Adjudicated for Felony	Was the youth every adjudicated with a felony? (yes/no)		
Out-of-Home Care				
	Age at first placement	Age (in years) at first placement	Predictor in RQ1 and RQ3	Continuous
	Age at First Placement	Age (in years) at first placement in the following categories: 1 = 0-3 2 = 4-6 3 = 7 - 10 4 = 11-12	Predictor in RQ2	Categorical
	Total Time in Care	Sum of days in each unique continuous placement	Predictor in RQ1 and RQ3	Continuous
	Placement Instability	Sum of number of placements	Predictor in RQ1 and RQ3	Continuous
	Placement Types	3 binary variables indicating if the youth was ever placed in each location setting.	Predictor in RQ1, RQ2, and RQ3	Binary
	Residential Care	Was the youth ever placed in residential care? (yes/no)		
	Kinship Care	Was the youth ever placed in kinship care? (yes/no)		
	Non-relative Foster Care	Was the youth ever placed in non-relative foster care? (yes/no)		
	Removal Reasons	Was the youth ever removed from their home for each type of reason for removal?	Predictor in RQ1 and RQ3	Binary
	Physical Abuse	Was the youth ever removed for physical abuse? (yes/no)		
	Sexual Abuse	Was the youth ever removed for sexual abuse? (yes/no)		

	Neglect	Was the youth ever removed for neglect? (yes/no)		
	Inadequate Housing	Was the youth ever removed for inadequate housing? (yes/no)		
	Parent Reason	Was the youth ever removed for a parent reason? (yes/no)		
	Child Reason	Was the youth ever removed for a child reason? (yes/no)		
CPS				
	CPS Involvement	Number of unique CPS accepted cases	Covariate in RQ1	Continuous
School				
	Pre-adolescent school mobility	Average number of times youth moved schools during the academic year of 2005-2012	Predictor in RQ1	Continuous
	Pre-adolescent school mobility	Did the youth ever move schools during the academic year of 2005-2012? (yes/no)	Predictor in RQ2	Binary
	Adolescent school mobility	Average number of times youth moved schools following 2012	Predictor in RQ1	Continuous
	Adolescent school mobility	Did the youth ever move schools following 2012? (yes/no)	Predictor in RQ2	Binary
	Race/Ethnicity	5 binary variables indicating any race/ethnicity associated with youth	Predictor in RQ1 and RQ2	Binary
	American Indian/Alaska Native	Was the youth ever identified as American Indian/Alaska Native? (yes/no)		
	Asian/Pacific Islander	Was the youth ever identified as Asian/Pacific Islander? (yes/no)		
	Hispanic	Was the youth ever identified as Hispanic? (yes/no)		
	Black	Was the youth ever identified as Black? (yes/no)		
	White	Was the youth ever identified as White? (yes/no)		
	Sex	What sex is the child? (male/female)	Covariate in RQ1, Predictor in RQ2	Binary
	Special education	Was the youth ever identified as receiving special education services? (yes/no)	Covariate in RQ1, Predictor in RQ2	Binary
	Disability	14 binary variables indicating if the youth was ever identified as having each disability.	Descriptive variable	Binary
		Was the youth ever identified as having a speech/language disability? (yes/no)		
		Was the youth ever identified as having a mild developmental/cognitive disability? (yes/no)		

Was the youth ever identified as having a severe developmental/cognitive disability? (yes/no)
Was the youth ever identified as having a physical disability? (yes/no)
Was the youth ever identified as deaf? (yes/no)
Was the youth ever identified as having a visual disability? (yes/no)
Was the youth ever identified as having a learning disability? (yes/no)
Was the youth ever identified as having an emotional behavioral disability? (yes/no)
Was the youth ever identified as deaf and blind? (yes/no)
Was the youth ever identified as having an other health disability? (yes/no)
Was the youth ever identified as having autism spectrum disorder? (yes/no)
Was the youth ever identified as having a developmental delay? (yes/no)
Was the youth ever identified as having a traumatic brain injury? (yes/no)
Was the youth ever identified as having multiple severe impairments? (yes/no)
Was the youth ever identified as having an accommodation plan? (yes/no)

Note. RQ1 = Research Question 1 (Logistic Regression); RQ2 = Research Question 2 (Survival Analysis); RQ3 = Research Question 3 (LCA)

Table 2. *Sample Demographic Information by Dataset*

	All dataset (n = 981)	First dataset (n = 532)	Average dataset (n = 979)
	Frequency (%)	Frequency (%)	Frequency (%)
Sex			
Female	457 (46.6)	257 (48.3)	457 (46.7%)
Male	524 (53.4)	275 (51.7)	522 (53.3%)
Race/Ethnicity			
AI/Alaska Native	207 (21.1)	128 (24.1)	206 (21.0)
Asian/PI	33 (3.4)	10 (1.9)	33 (3.4)
Hispanic	114 (11.6)	58 (10.9)	114 (11.6)
Black	292 (29.8)	165 (31.0)	291 (29.7)
White	603 (61.5)	322 (60.5)	603 (61.6)
Missing	1 (0.10)	0	1 (0.10)
Special education			
Yes	557 (56.8)	305 (57.33)	557 (56.9)
No	378 (38.5)	194 (36.47)	378 (38.6)
Missing	46 (4.7)	33 (6.20)	44 (4.5)
Placement types			
Residential care	420 (42.8)	165 (31.0)	398(40.7)
Kinship care	482 (49.1)	244 (45.9)	470 (48.0)
Nonrelative foster care	756 (77.1)	405 (76.1)	746 (76.2)
Removal reasons			
Inadequate housing	101 (10.3)	24 (4.5)	102 (9.6)
Parent reason	590 (60.1)	241 (45.3)	583 (59.6)
Child reason	231 (23.5)	76 (14.3)	227 (23.2)
Neglect	531 (54.1)	120 (22.6)	530 (54.1)
Physical abuse	240 (24.5)	67 (12.6)	238 (24.3)
Sexual abuse	97 (9.9)	24 (4.5)	94 (9.6)
Crossover	334 (34.0)	186 (35)	334 (34.1)
	M (SD)	M (SD)	M (SD)
Age at first placement	7.38 (2.98)	5.50 (2.85)	7.38 (2.98)
Number of placement changes	4.49 (3.99)	3.54 (2.92)	4.19 (3.65)
Days in care	872.98 (1070.65)	442.07 (445.28)	723.26 (770.37)
Average school moves			
Pre-adolescence	0.72 (0.57)	0.71 (0.60)	0.72 (0.57)
Adolescence	0.66 (0.72)	-	0.69 (0.80)
Number of CPS accepted cases	8.88 (6.59)	6.54 (4.86)	6.06 (6.12)

Table 3. *Descriptive Information about Crossover Experiences by Dataset*

	All dataset (n = 334)	First dataset (n = 186)	Average dataset (n = 334)
	M (SD)	M (SD)	M (SD)
Age at crossover in years	13.74 (2.01)	13.70 (2.03)	13.74 (2.01)
Number of unique court cases	4.56 (5.21)	4.87 (5.30)	4.56 (5.21)
	Frequency (%)	Frequency (%)	Frequency (%)
Charge type for first alleged offense			
Felony	33 (9.88)	19 (10.22)	33 (9.88)
Gross misdemeanor	17 (5.09)	10 (5.38)	17 (5.09)
Misdemeanor	180 (53.89)	100 (53.76)	180 (53.89)
Petty misdemeanor	94 (28.14)	48 (25.81)	94 (28.14)
Juvenile petty offense	3 (0.90)	2 (1.08)	3 (0.90)
Adjudicated for first alleged offense			
Felony	5 (1.50)	2 (1.08)	5 (1.50)
Gross misdemeanor	5 (1.50)	3 (1.61)	5 (1.50)
Misdemeanor	80 (23.95)	41 (22.04)	80 (23.95)
Petty misdemeanor	2 (0.60)	1 (0.54)	2 (0.60)
Juvenile petty offense	2 (0.60)	1 (0.54)	2 (0.60)
Charge type of any alleged offense			
Felony	107 (32.04)	66 (35.48)	107 (32.04)
Gross misdemeanor	80 (23.95)	50 (26.88)	80 (23.95)
Misdemeanor	276 (82.63)	158 (84.95)	276 (82.63)
Petty misdemeanor	158 (47.31)	83 (44.62)	158 (47.31)
Juvenile petty offense	7 (2.10)	5 (2.69)	7 (2.10)
Adjudicated for any alleged offense			
Felony	47 (14.07)	28 (15.05)	47 (14.07)
Gross misdemeanor	40 (11.98)	24 (12.90)	40 (11.98)
Misdemeanor	187 (55.99)	102 (54.84)	187 (55.99)
Petty misdemeanor	14 (4.19)	8 (4.30)	14 (4.19)
Juvenile petty offense	6 (1.80)	4 (2.15)	6 (1.80)

Table 4. *Correlations between Study Variables for All Dataset*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1.Crossover	-																						
2.Age at first placement	-.01	-																					
3.Placement Instability	-.07*	-.44**	-																				
4.Days in care	-.15	-.36**	.45**	-																			
5.Pre-adolescence school mobility	.05	-.08*	.18**	.08*	-																		
6.Adolescence school mobility	.15**	-.04	.13**	.01	.22*	-																	
7.Inadequate housing	.10**	-.07	.04	.03	-.04	-.06	-																
8.Parent reason	.10**	-.25**	.18**	.09**	-.07*	-.00	-.02	-															
9.Child reason	.19**	.04	.05	.04	.09**	.10**	.03	-.01	-														
10.Neglect	.01	-.27**	.19**	.11**	-.01	.01	.05	.10**	.12**	-													
11.Physical abuse	.04	-.11**	.12**	-.02	.13**	.02	-.04	-.14**	-.09**	-.09**	-												
12.Sexual abuse	-.02	-.01	.10**	.03	.02	.11**	-.06	-.08*	-.05	-.06	.03	-											
13.Residential care	.07*	-.12**	.42**	.16**	.26**	.23**	-.07	-.03	.29**	-.04	.08**	.10**	-										
14.Kinship care	-.05	-.19**	.21**	.16**	-.04	-.06	.03	.21**	-.15**	.25**	-.04	-.05	-.09**	-									
15.Nonrelative care	-.17**	-.24**	.31**	.18*	.04	.04	.11*	.04	-.03	.14**	.10**	.07*	-.06	-.18**	-								
16.AI/Alaska	.14**	-.08**	.06	.13**	-.04	.06	.04	.09**	-.05	.17**	-.13	-.00	-.01	.10**	.03	-							
17.Asian/PI	-.06	.06	-.00	-.01	.08*	-.02	-.03	.11**	-.02	.00	-.00	-.02	.02	.01	-.02	-.03	-						
18.Hispanic	.03	.05	.01	-.06	.09**	.08*	-.03	-.04	.05	-.08*	-.01	.09**	.04	-.10**	.03	-.04	.02	-					
19.Black	.01	-.08*	.12**	.02	.26**	.11**	-.11*	-.09**	-.02	-.06	.17**	.04	.18**	-.01	.04	-.22**	-.06	-.10**	-				
20.White	-.02	.05	-.09**	-.03	-20**	-.09**	.05	.08*	.14**	-.00	-.13**	-.01	-.11**	-.01	-.01	-.21**	-.13**	-.15**	-.45*	-			
21.Sex	.12**	.04	-.07*	-.02	.05	-.06	.01	-.06	.10**	-.09**	-.01	-.14**	.01	-.03	-.03	.04	.03	-.03	-.04	-.02	-		
22.Special education	.08*	-.07*	.10**	.15**	-.14**	.09*	.04	.00	.28**	.02	-.06	.02	.16**	-.04	.04	-.03	-.07**	-.01	.01	.11*	.23*	-	
23.CPS involvement	.09**	-.21**	.23**	.10**	.04	.11**	.04	.16**	.04	.22**	.05	.10**	.07*	.11**	.10*	.08**	.00	-.02	-.01	.07*	-.09*	.13*	-

Note. Correlations involving dichotomous variables used the point-biserial correlation method and correlations involving only continuous variables used Pearson's correlation method; * indicates $p < .05$ and ** indicates $p < .001$

Table 5. *Correlations between Study Variables for First Dataset*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1.Crossover	-																					
2.Age at first placement	.00	-																				
3.Placement Instability	-.11**	-.39**	-																			
4.Days in care	-.17**	-.35**	.51**	-																		
5.Pre-adolescence school mobility	.06	-.06	.25**	.12**	-																	
6.Inadequate housing	-.05	.01	.05	.11**	-.03	-																
7.Parent reason	.02	-.15**	-.03	-.01	-.10*	-.18**	-															
8.Child reason	.19**	.04	-.05	-.06	.11*	-.06	.32**	-														
9.Neglect	-.01	-.11*	.04	.07	.05	.01	-.38**	-.17**	-													
10.Physical abuse	-.11**	.05	.17**	.04	.07	-.08	-.28**	-.16**	-.19**	-												
11.Sexual abuse	-.03	.04	.03	-.05	.03	-.05	-.18**	-.06	-.10*	-.06	-											
12.Residential care	-.04	-.05	.38**	.12**	.24**	.01	-.13**	.12**	-.00	.10*	.09*	-										
13.Kinship care	-.02	-.12**	.25**	.21**	.01	-.11**	.10*	-.07	.02	-.04	.02	-.08	-									
14.Nonrelative care	-.16**	-.19**	.27**	.21**	.03	.10**	-.01	-.10*	.03	.12**	-.01	.12**	-.25**	-								
15.AI/Alaska	.11**	-.08	-.04	.10*	.01	.07	.07	-.00	.12**	-.16**	.03	-.12**	.07	.03	-							
16.Asian/PI	-.01	.02	-.00	-.01	.12**	.04	-.05	-.06	.09*	-.01	-.03	-.03	-.02	.08	-.01	-						
17.Hispanic	.03	.05	.00	-.07	.09*	-.02	.00	.05	-.09*	.05	.10*	.07	-.07	.01	-.04	.04	-					
18.Black	.01	-.09	.19**	.04	.22**	-.11*	-.14**	.03	.01	.19**	.07	.33**	.04	-.05	-.25**	-.06	-.13**	-				
19.White	-.05	.05	-.16**	-.07	-.23**	.05	.08	.06	-.08	-.13**	-.03	-.25**	-.05	.06	-.19**	.12**	-.09*	-.50**	-			
20.Sex	.16**	.02	-.01	-.02	.02	-.01	-.00	.08	.01	-.04	-.04	-.03	-.03	.01	.03	-.03	-.05	-.05	-.02	-		
22.Special education	.09	-.09*	.05	.08	.14**	.02	-.15**	.22**	.00	-.04	.08	.06	-.02	-.02	.00	-.03	-.00	.06	.01	.22**	-	
22.CPS involvement	-.03	-.13**	.11**	.08	.09*	.11*	-.04	.01	.12**	-.01	-.02	.05	-.06	.10*	.06	-.05	.03	-.03	.07	-.01	.12**	-

Note. Correlations involving dichotomous variables used the point-biserial correlation method and correlations involving only continuous variables used Pearson's correlation method; * indicates $p < .05$ and ** indicates $p < .001$

Table 6. *Correlations between Study Variables for Average Dataset*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1.Crossover	-																						
2.Age at first placement	-.01	-																					
3.Placement Instability	-.03	-.44**	-																				
4.Days in care	-.00	-.38**	.51**	-																			
5.Pre-adolescence school mobility	.05	-.08*	.19**	.13**	-																		
6.Adolescence school mobility	.14**	-.01	.10**	.07*	.24**	-																	
7.Inadequate housing	-.02	-.14**	.10**	.06	-.07*	-.09*	-																
8.Parent reason	.09**	-.25**	.17**	.09**	-.07*	-.01	.07*	-															
9.Child reason	.21**	.04	.04	.09**	.10**	.13**	.03	-.01	-														
10.Neglect	.01	-.27**	.18**	.11**	-.01	-.01	.11**	.10**	-.12**	-													
11.Physical abuse	.04	-.11**	.11**	-.02	.13**	.03	-.07*	-.14**	-.09**	-.09**	-												
12.Sexual abuse	-.02	-.01	.06	-.00	.03	.10**	-.07*	-.09**	-.03	-.07**	.02	-											
13.Residential care	.11**	-.11**	.41**	.20**	.25**	.20**	-.05	-.05	.28**	-.05	.08*	.10**	-										
14.Kinship care	.01	-.19**	.19**	.13**	-.04	-.10**	.01	.21**	-.17**	.24**	-.04	-.04	-.13**	-									
15.Nonrelative care	-.02	-.24**	.31**	.22**	.03	.04	.10**	.03	-.04	.15**	.10**	.06	-.08**	-.19**	-								
16.AI/Alaska	.14**	-.09**	.05	.16**	-.04	.03	.05	.09**	-.06	.17**	.13**	-.01	-.03	.10**	.04	-							
17.Asian/PI	-.06*	.06	-.01	-.04	.08*	.01	-.05	-.11**	-.02	.00	.00	-.02	.02	.00	-.02	-.03	-						
18.Hispanic	.03	.05	.01	-.04	.09**	.10**	-.05	-.03	.06	-.08*	-.01	.10**	.04	-.09**	.02	-.04	.02	-					
19.Black	.01	-.08*	.13**	-.02	.25**	.08*	.11**	-.09**	-.02	-.06	.16**	.03	.18**	-.00	.02	-.22*	-.06	.10**	-				
20.White	-.02	.05	-.09**	-.00	-.19**	-.07*	.06	.08*	.13**	-.01	-.13**	-.01	-.10**	-.02	-.01	-.21**	-.13**	-.15**	-.45**	-			
21.Sex	.12**	.04	-.04	.03	.04	-.04	-.04	-.06	.11**	-.09**	.00	-.13**	.02	-.02	-.01	.04	.03	-.02	-.05	-.02	-		
22.Special Education	.08*	-.07*	.10**	.18**	.13**	.13**	.01	-.00	.28**	.02	-.06	.03	.16**	-.05	.03	-.03	-.07*	-.01	.01	.11**	.23**	-	
23.CPS Involvement	-.18**	-.22**	.22**	.11**	-.01	.02	.07*	.13	-.10**	.20**	.03	.04	-.03	.13**	.14**	.02	.03	-.02	-.02	.06	-.09**	.04	-

Note. Correlations involving dichotomous variables used the point-biserial correlation method and correlations involving only continuous variables used Pearson's correlation method; * indicates $p < .05$ and ** indicates $p < .001$

Table 7. *Logistic Regression Results Predicting Odds of Crossover by Dataset*

	All dataset			First dataset			Average dataset		
	OR	SE	*p*	OR	SE	*p*	OR	SE	*p*
Age at first placement	0.97	.03	.40	0.95	0.04	.18	0.99	.03	.80
Days in care	1.00	.00	<.001	1.00	0.00	.003	1.00	.00	.42
Placement Instability	0.92	.03	.02	1.00	0.06	.98	0.94	.04	.07
Placement type									
Residential care	1.30	.20	.20	0.63	0.29	.10	1.60	.21	.02
Kinship care	1.11	.19	.60	0.81	0.25	.41	1.33	.19	.14
Nonrelative foster care	0.92	.22	.68	0.46	0.28	.01	1.89	.22	.43
Removal reasons									
Neglect	1.16	.18	.42	1.50	0.39	.30	1.25	.18	.21
Physical abuse	1.81	.20	.003	1.27	0.47	.60	1.83	.20	.002
Sexual abuse	0.93	.29	.81	1.32	0.59	.64	0.94	.29	.82
Inadequate housing	1.09	.27	.76	1.31	0.62	.66	1.07	.27	.80
Child reason	2.14	.21	<.001	4.60	0.44	<.001	2.16	.21	<.001
Parent reason	1.74	.18	.002	2.08	0.38	.05	1.73	.18	.002
School mobility									
Pre-adolescence	1.15	.15	.37	1.29	0.19	.17	1.07	.15	.65
Adolescence	1.46	.12	.002	-	-	-	1.38	.11	.003
Race/Ethnicity									
AI/Alaska Native	2.80	.22	<.001	1.97	0.27	0.01	2.50	.21	<.001
Asian/PI	0.51	.50	.18	1.12	0.76	0.87	0.49	.48	.14
Hispanic	1.12	.26	.67	1.34	0.34	0.39	1.10	.26	.72
Black	1.27	.23	.30	1.39	0.30	0.26	1.25	.22	.32
White	1.01	.21	.95	1.02	0.27	0.95	1.03	.21	.91
Special ed services	1.03	.18	.86	1.84	0.22	0.64	0.92	.18	.63
Sex	1.60	.17	.01	1.84	0.21	0.004	1.47	.17	.02
CPS involvement	1.02	.01	.07	0.98	0.02	0.44	0.95	.02	<.001
Constant	0.18	.50	<.001	0.55	0.65	0.36	0.15	.50	<.001

Note. All dataset $R^2 = .19$; First dataset $R^2 = .19$; Average dataset $R^2 = .17$

Table 8. *Mantel-Cox Log-rank Comparison Test Results Predicting Timing of Crossover by Dataset*

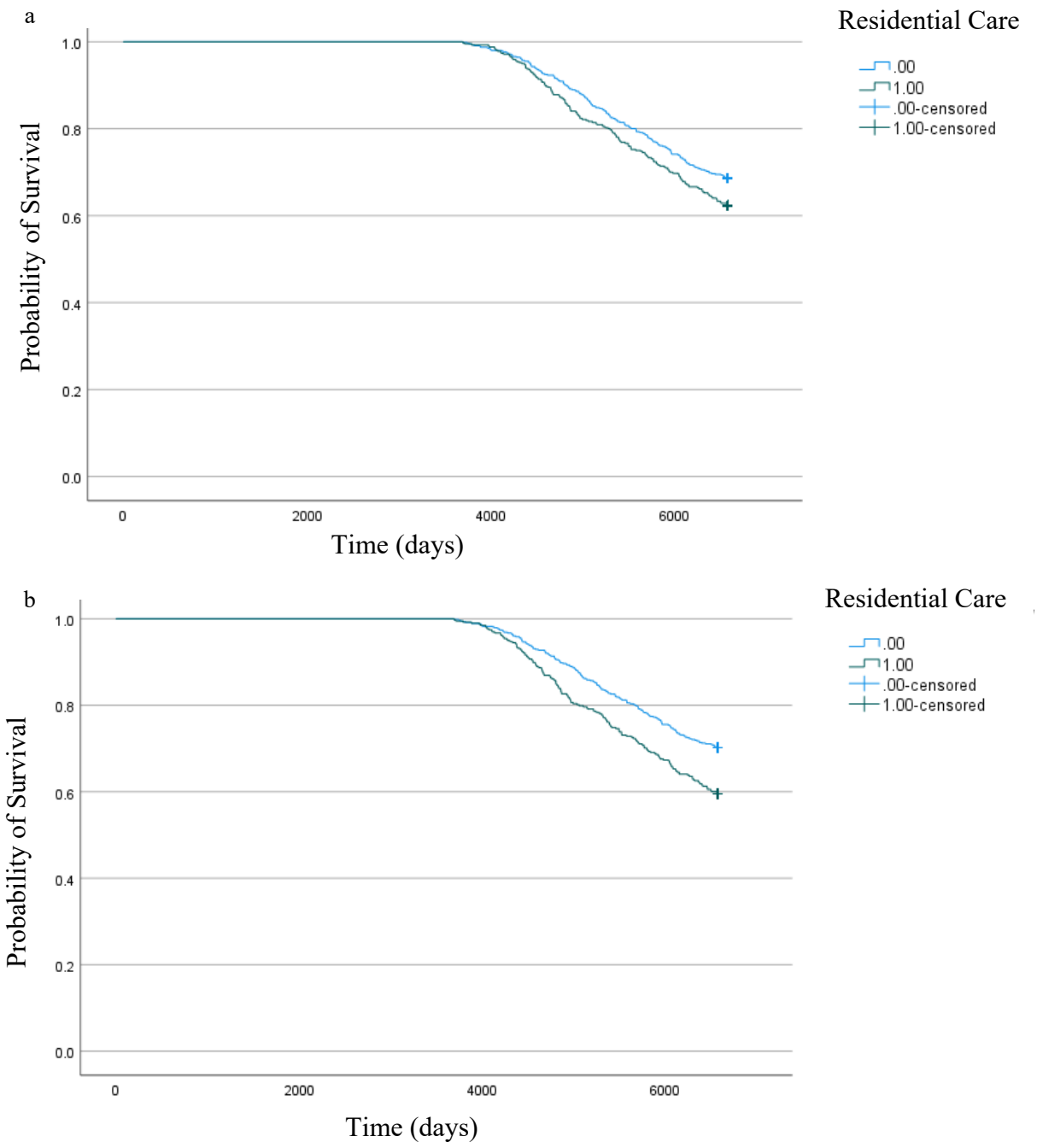
	All dataset			First dataset			Average dataset		
	χ^2	df	p	χ^2	df	p	χ^2	df	p
Age at first placement	4.03	3	.26	.32	2	.85	4.06	3	.26
Placement type									
Residential care	4.33	1	.04	1.10	1	.29	12.54	1	<.001
Kinship care	.19	1	.66	.21	1	.65	.01	1	.93
Nonrelative foster care	3.05	1	.08	14.47	1	<.001	.63	1	.43
Removal reasons									
Neglect	.01	1	.91	.06	1	.81	.02	1	.90
Physical abuse	1.78	1	.18	6.16	1	.01	2.02	1	.16
Sexual abuse	.54	1	.46	.67	1	.41	.50	1	.48
Inadequate housing	.89	1	.35	1.30	1	.25	.66	1	.42
Child reason	47.52	1	<.001	29.41	1	<.001	57.10	1	<.001
Parent reason	8.98	1	.003	.18	1	.67	7.64	1	.01
School mobility									
Pre-adolescence	.26	1	.61	1.12	1	.29	.27	1	.60
Adolescence	2.69	1	.10	-	-	-	.28	1	.59
Race/Ethnicity									
AI/Alaska Native	19.63	1	<.001	7.04	1	.01	20.01	1	<.001
Asian/PI	3.91	1	.05	.19	1	.66	3.94	1	.05
Hispanic	.91	1	.34	.74	1	.39	.88	1	.35
Black	.17	1	.68	.11	1	.75	.18	1	.67
White	.55	1	.46	1.40	1	.24	.64	1	.42
Sex	14.20	1	<.001	14.62	1	<.001	14.54	1	<.001
Special education	8.25	1	.004	4.78	1	.03	8.54	1	.003

Table 9. *Average Age of Crossover in Years Based on Group Characteristics by Dataset*

All Dataset			
	No M (SE)	Yes M (SE)	Difference in Days Between yes/no
Placed in residential care	16.85 (0.09)	16.59 (0.11)	-94.32*
Placed in nonrelative foster care	16.53 (0.15)	16.80 (0.08)	99.70
Removed for physical abuse	16.78 (0.08)	16.59 (0.14)	-70.79
Removed for child reason	17.03 (0.07)	15.80 (0.17)	-448.46*
Removed for parent reason	16.94 (0.10)	16.60 (0.09)	-124.62*
AI/Alaska Native	16.85 (0.08)	16.29 (0.16)	-205.20*
Asian/PI	16.70 (0.07)	17.63 (0.17)	336.97*
Special education	17.05 (0.09)	16.48 (0.10)	-210.05*
	Female	Male	Difference between male/female
Sex	17.03 (0.09)	16.48 (0.10)	-210.05*
First Dataset			
	No M (SE)	Yes M (SE)	Difference between yes/no
Placed in residential care	16.59 (0.12)	16.88 (0.16)	105.74
Placed in nonrelative foster care	16.19 (0.21)	16.84 (0.10)	235.95*
Removed for physical abuse	16.60 (0.10)	17.26 (0.21)	238.99*
Removed for child reason	16.92 (0.09)	15.24 (0.32)	-613.74*
Removed for parent reason	16.64 (0.14)	16.73 (0.13)	33.83
AI/Alaska Native	16.80 (0.11)	16.33 (0.20)	-170.10*
Asian/PI	16.67 (0.10)	17.26 (0.41)	213.48
Special education	17.02 (0.13)	16.41 (0.14)	-222.45*
	Female	Male	Difference between male/female
Sex	17.09 (0.11)	16.31 (0.15)	-285.05*
Average Dataset			
	No M (SE)	Yes M (SE)	Difference between yes/no
Placed in residential care	16.91 (0.08)	16.47 (0.11)	-162.33*
Placed in nonrelative foster care	16.62 (0.15)	16.77 (0.08)	55.17
Removed for physical abuse	16.78 (0.08)	16.58 (0.14)	-75.15
Removed for child reason	17.04 (0.07)	14.73 (0.18)	-845.23*
Removed for parent reason	16.94 (0.10)	16.60 (0.09)	-123.26*
AI/Alaska Native	16.85 (0.08)	16.28 (0.16)	-207.70*
Asian/PI	16.70 (0.07)	17.63 (0.17)	337.72*
Special education	17.05 (0.09)	16.47 (0.10)	-211.61*
	Female	Male	Difference between male/female
Sex	17.03 (0.09)	16.48 (0.10)	-201.77*

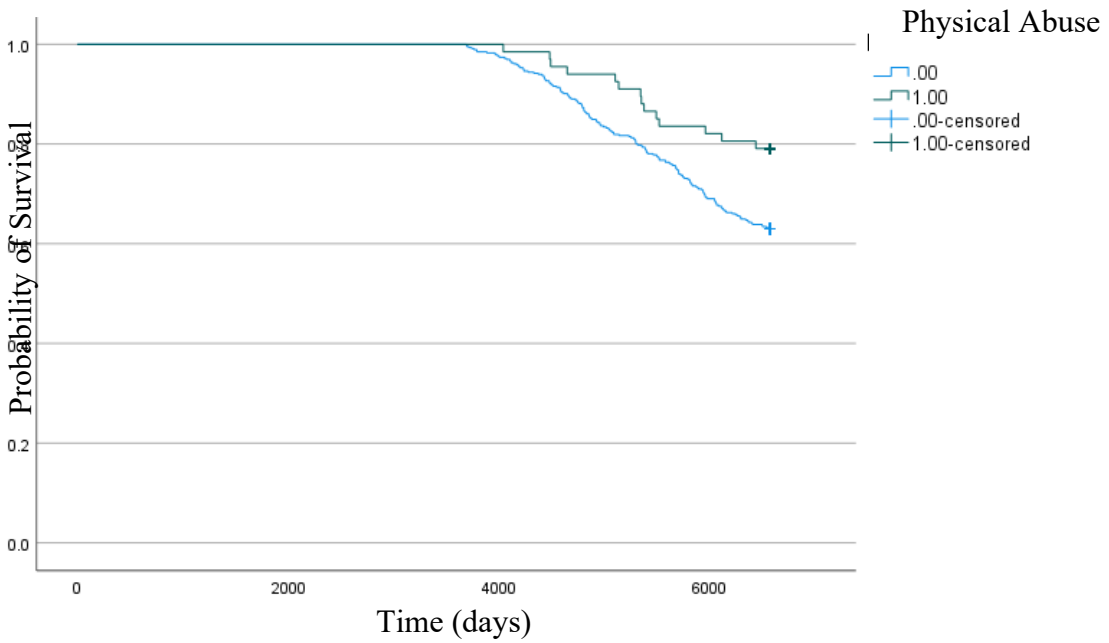
Note. * indicates $p < .05$

Figure 2. *Survival Plots Predicting Timing of Crossover for Youth Placed in Residential Care vs. Youth Who Were Not for All and Average Datasets*



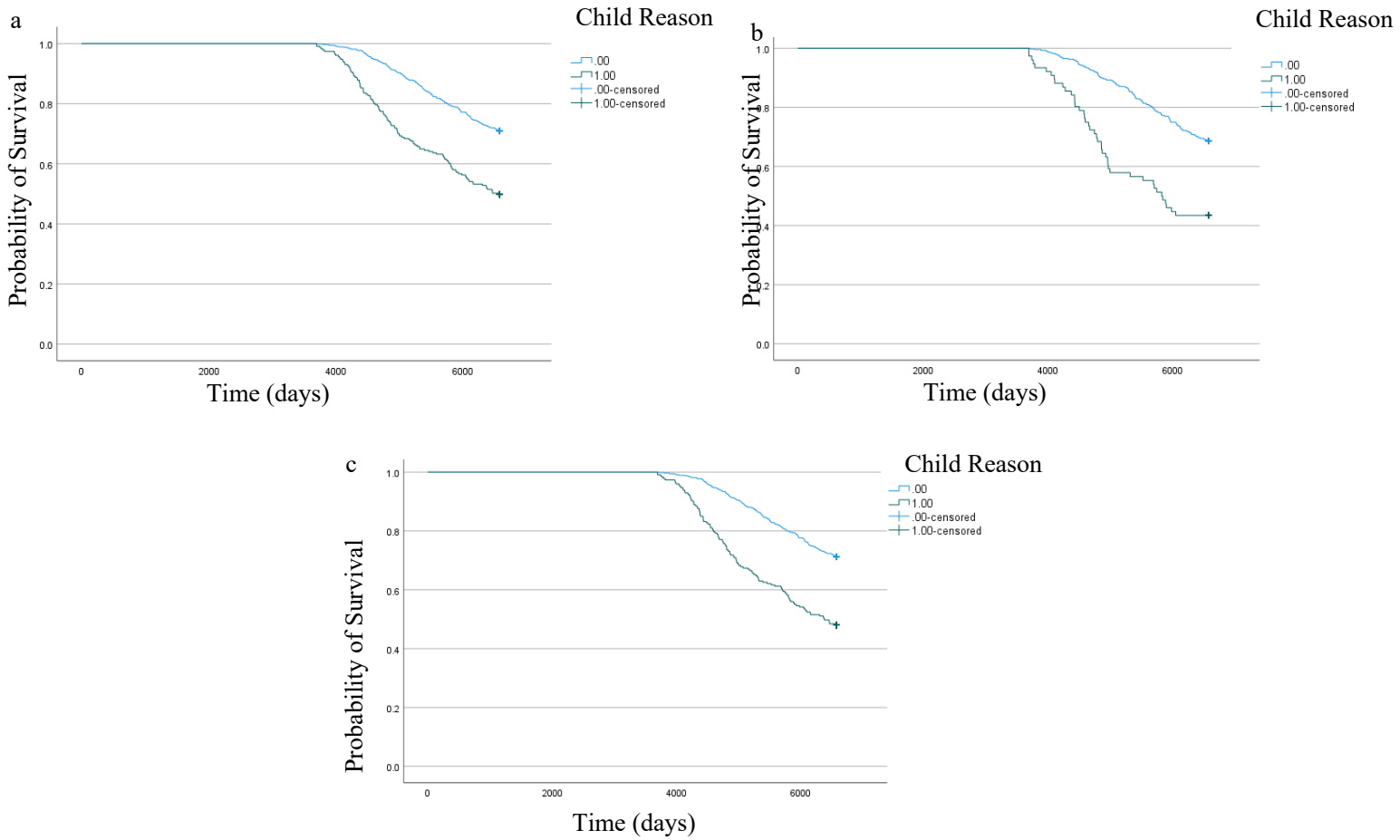
Note. 0 indicates no history of residential care; 1 indicates history of residential care. a = All dataset; b = Average dataset

Figure 3. *Survival Plot Predicting Timing of Crossover for Youth Who Were Removed from the Home for Physical Abuse vs. Youth Who Were Not for First Dataset*



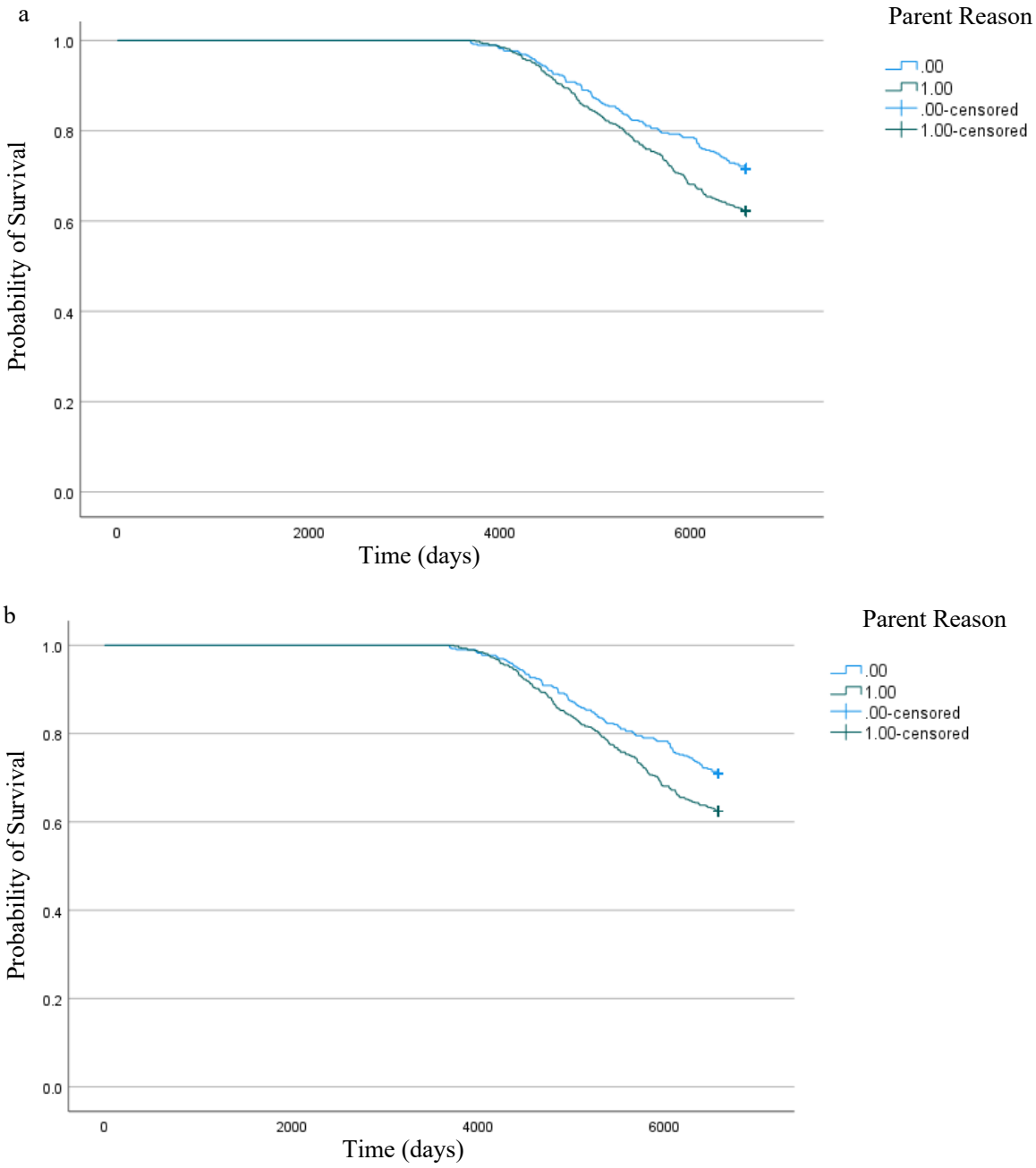
Note. 0 indicates residential care; 1 indicates removal for physical abuse

Figure 4. *Survival Plot Predicting Timing of Crossover for Youth Who Were Removed from the Home for a Child Reason vs. Youth Who Were Not for All, First, and Average Datasets*



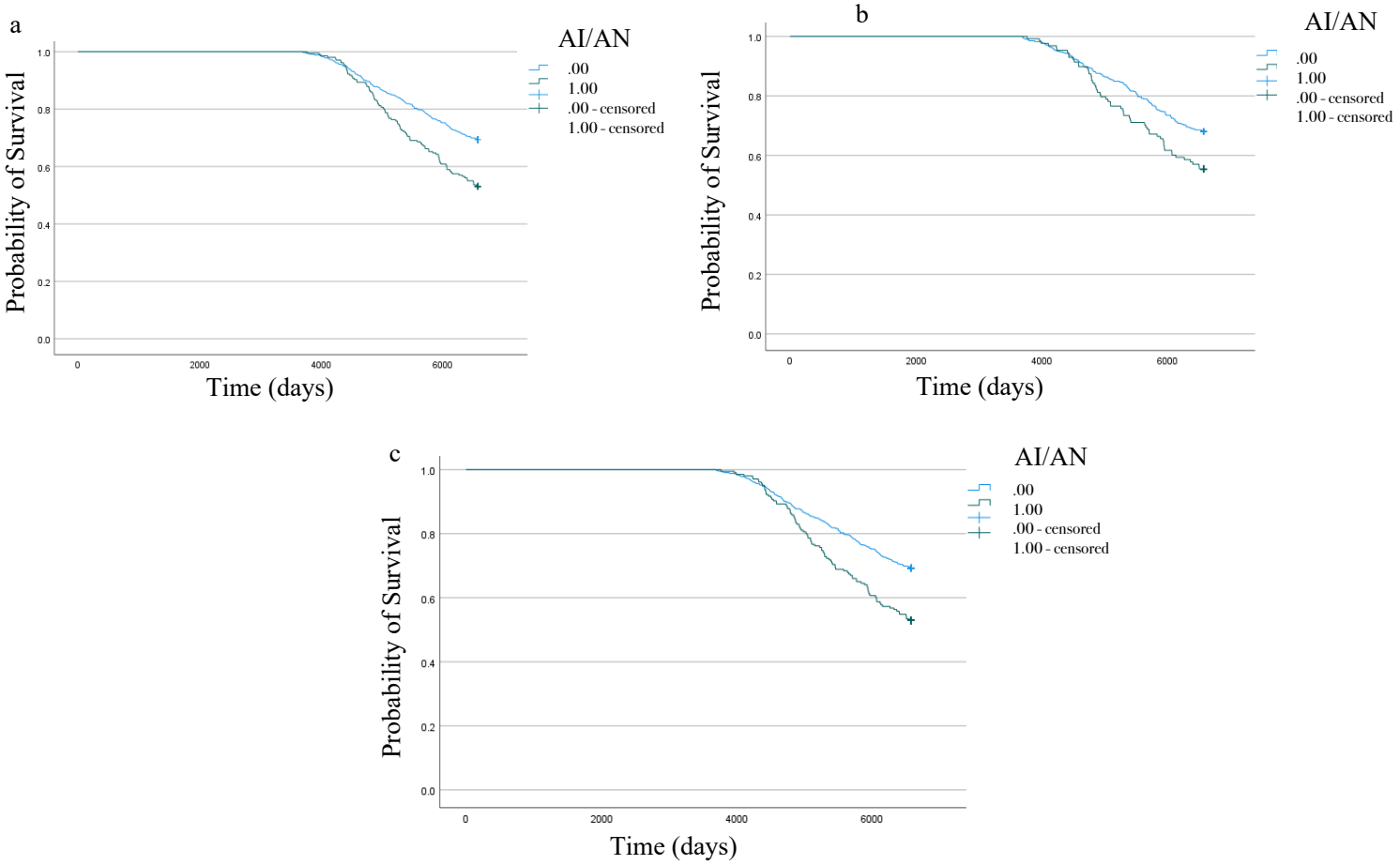
Note. 0 indicates no removal for child reason; 1 indicates removal for child reason. a = All dataset; b = First dataset; c = Average dataset

Figure 5. *Survival Plot Predicting Timing of Crossover for Youth Who Were Removed from the Home for a Parent Reason vs. Youth Who Were Not for All and Average Datasets*



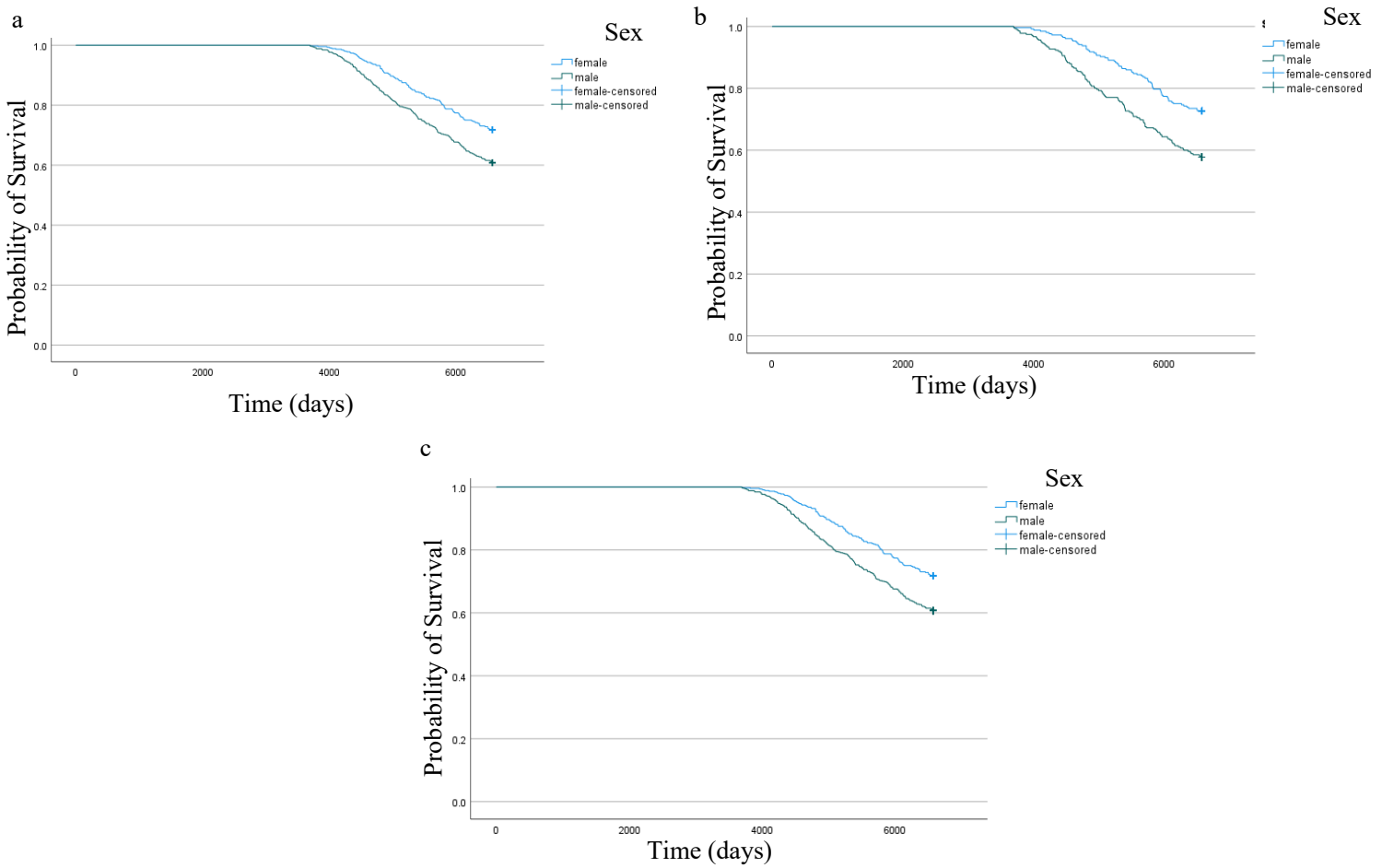
Note. 0 indicates no removal for parent reason; 1 indicates removal for parent reason. a = All dataset; b = Average dataset

Figure 6. *Survival Plot Predicting Timing of Crossover for Youth Who Were Identified as American Indian or Alaska Native vs. Youth Who Were Not for All, First, and Average Datasets*



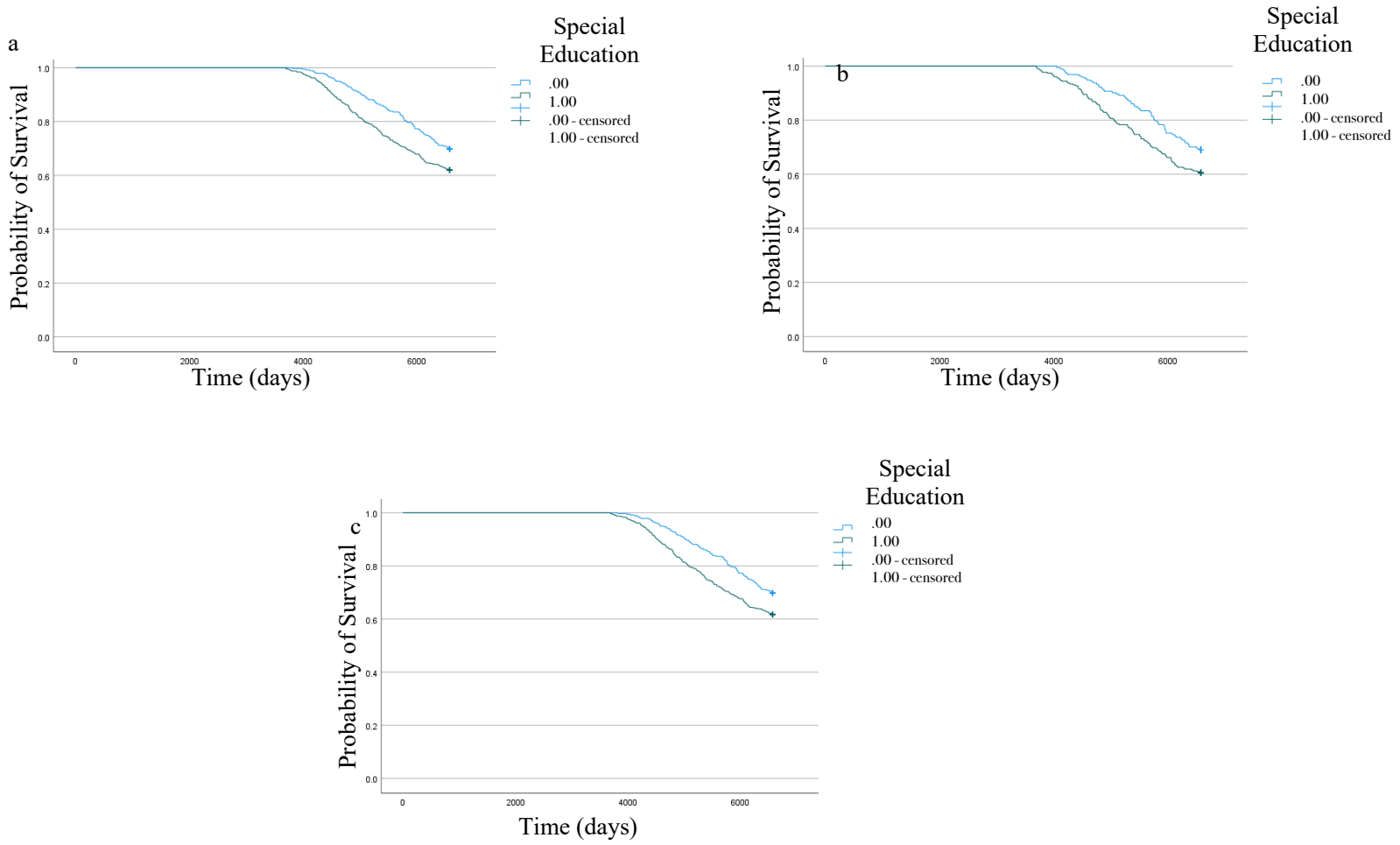
Note. 0 indicates not identified as American Indian or Alaska Native (AI/AN); 1 indicates identified as American Indian or Alaska Native (AI/AN); a = All dataset; b = First dataset; c = Average dataset

Figure 7. *Survival Plot Predicting Timing of Crossover for Female vs Male Youth for All, First, and Average Datasets*



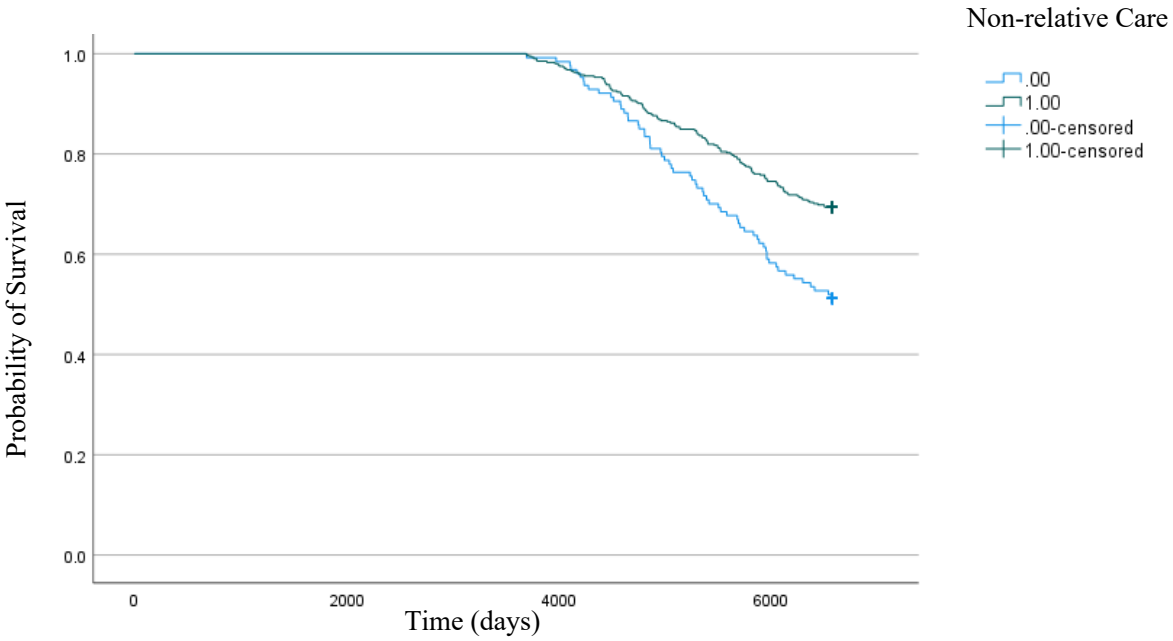
Note. a = All dataset; b = First dataset; c = Average dataset

Figure 8. *Survival Plot Predicting Timing of Crossover for Youth Who Were Identified as Receiving Special Education Services vs. Youth Who Were Not for All, First, and Average Datasets*



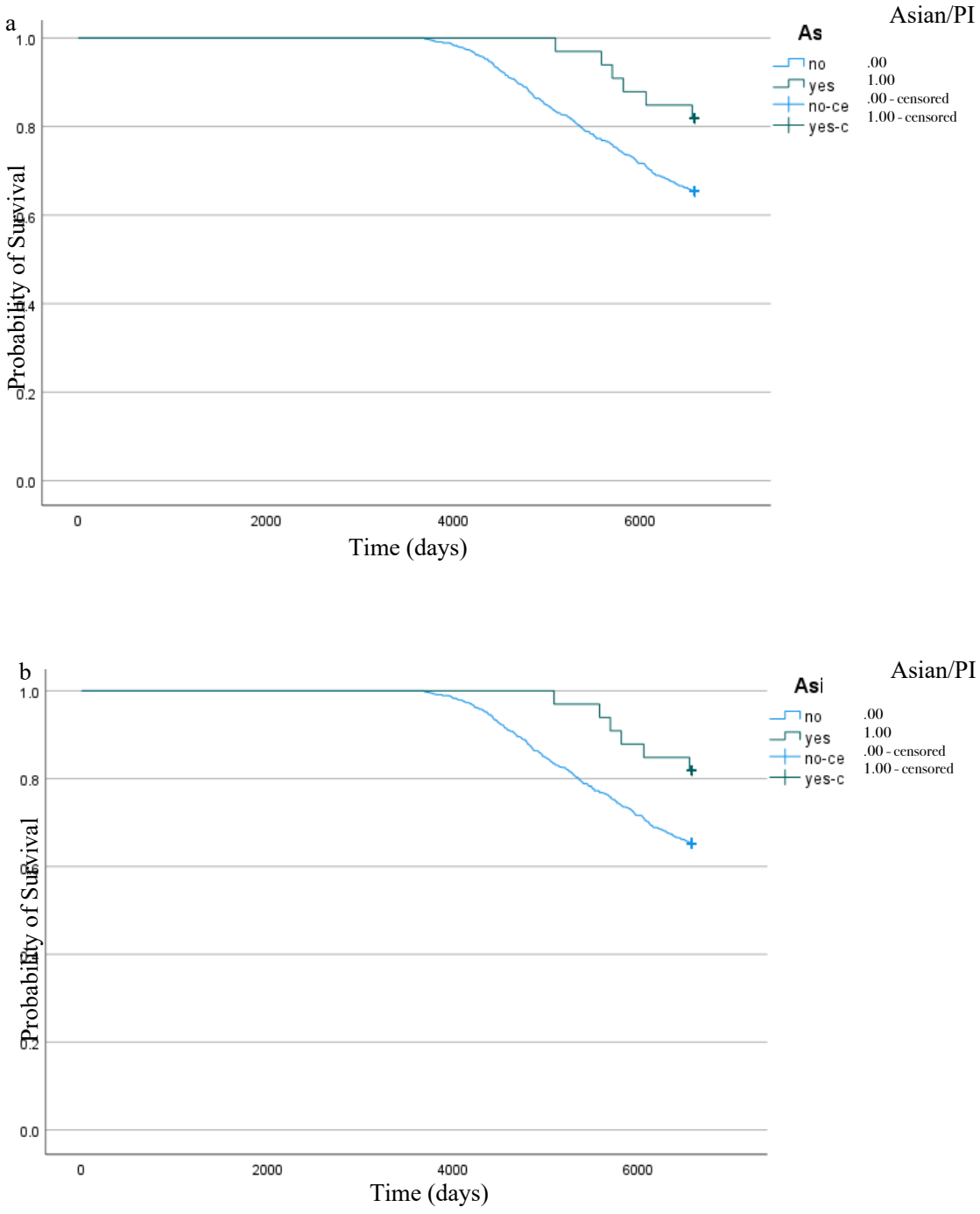
Note. 0 indicates not identified as receiving special education services; 1 indicates identified as needing special education services; a = All dataset; b = First dataset; c = Average dataset

Figure 9. *Survival Plots Predicting Timing of Crossover for Youth Placed in Non-relative Foster Care vs. Youth Who Were Not for First Dataset*



Note. 0 indicates not ever placed in non-relative foster care; 1 indicates placed in non-relative foster care.

Figure 10. *Survival Plot Predicting Timing of Crossover for Youth Who Were Identified as Asian or Pacific Islander vs. Youth Who Were Not for All and Average Datasets*



Note. 0 indicates not identified as Asian/Pacific Islander; 1 indicates identified as Asian/Pacific Islander; a = All dataset; b = Average dataset

Table 10. *Post Hoc Analysis Examining Descriptive Information about Youth Disability Among Non-Crossover and Crossover Youth in the All Dataset*

Youth Disability	Full sample	Non-crossover youth	Crossover youth
	N (%)	N (%)	N (%)
Speech language	106 (10.6%)	78 (12.0%)	28 (8.0%)
Developmental/cognitive mild	76 (7.6%)	54 (8.3%)	22 (6.3%)
Developmental/cognitive severe	20 (2.0)	15 (2.3%)	5 (1.4%)
Physical	5 (.5%)	3 (.5%)	2 (.6%)
Deaf	3 (.3%)	5 (.8%)	7 (2.0%)
Visual	3 (.3%)	2 (.3%)	1 (.3%)
Learning	163 (16.3%)	107 (16.5%)	56 (16.0%)
Emotional behavioral	277 (27.8%)	130 (20.0%)	147 (42.1%)
Deaf blind	1 (.1%)	1 (.2%)	7 (2.0%)
Other health	135 (13.5%)	81 (12.5%)	54 (15.5%)
Autism	56 (5.6%)	40 (6.2%)	16 (4.6%)
Developmental delay	191 (19.1%)	141 (21.7%)	50 (14.3%)
Traumatic brain injury	1 (.1%)	1 (.2%)	7 (2.0%)
Severely multiply impaired	15 (1.5%)	14 (2.2%)	1 (.3%)
Accommodation plan	40 (4.0%)	26 (4.0%)	14 (4.0%)

Table 11. *LCA Model Fit Statistics for Model Selection*

Number of classes	AIC	BIC	ABIC	LMR-LRT *p* value
		All dataset		
2	32013.91	32150.79	32061.86	.000
3	31576.30	31776.73	31646.51	.004
4	31231.62	31495.60	31324.09	.03
5	31007.16	31334.69	31121.90	.0002
6	30832.22	31223.30	30969.22	.12
		Average dataset		
2	31082.14	31218.96	31130.03	.000
3	30735.01	30935.36	30805.14	.16

Note. AIC stands for Akaike information criterion; BIC stands for Bayesian information criterion; ABIC stands for adjusted Bayesian information criterion; LMR-LRT stands for Lo-Mendell-Rubin adjusted likelihood ratio test

Table 12. *LCA Probability of Endorsing Category per Class by Dataset*

	All dataset					Average dataset	
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 1	Class 2
Class name	Toddler Movers	Mid-childhood Movers	Mid-childhood Stayers	Early childhood Stayers	Early childhood Movers	Early Movers	Late Stayers
Size of class	181	260	436	56	48	248	731
Age at first placement	3.15	8.91	8.86	5.64	4.39	3.13	8.83
Weeks in care	132.67	94.49	56.16	572.06	345.69	184.09	75.69
Placement Instability	6.38	4.32	2.39	5.05	16.37	7.49	3.06
Residential care	.51	1.00	0	.36	.98	.55	.36
Kinship care	.67	.31	.49	.58	.69	.65	.42
Nonrelative care	.95	.60	.76	.87	1.00	.95	.70
Neglect	.79	.38	.49	.64	.79	.79	.46
Physical abuse	.28	.25	.22	.16	.44	.31	.22
Sexual abuse	.08	.11	.08	.14	.24	.10	.10
Housing	.21	.05	.09	.10	.16	.19	.08
Child reason	.21	.43	.13	.20	.26	.22	.24
Parent reason	.82	.45	.57	.62	.82	.79	.53

Figure 11. *LCA Categorical Probability for All Dataset*

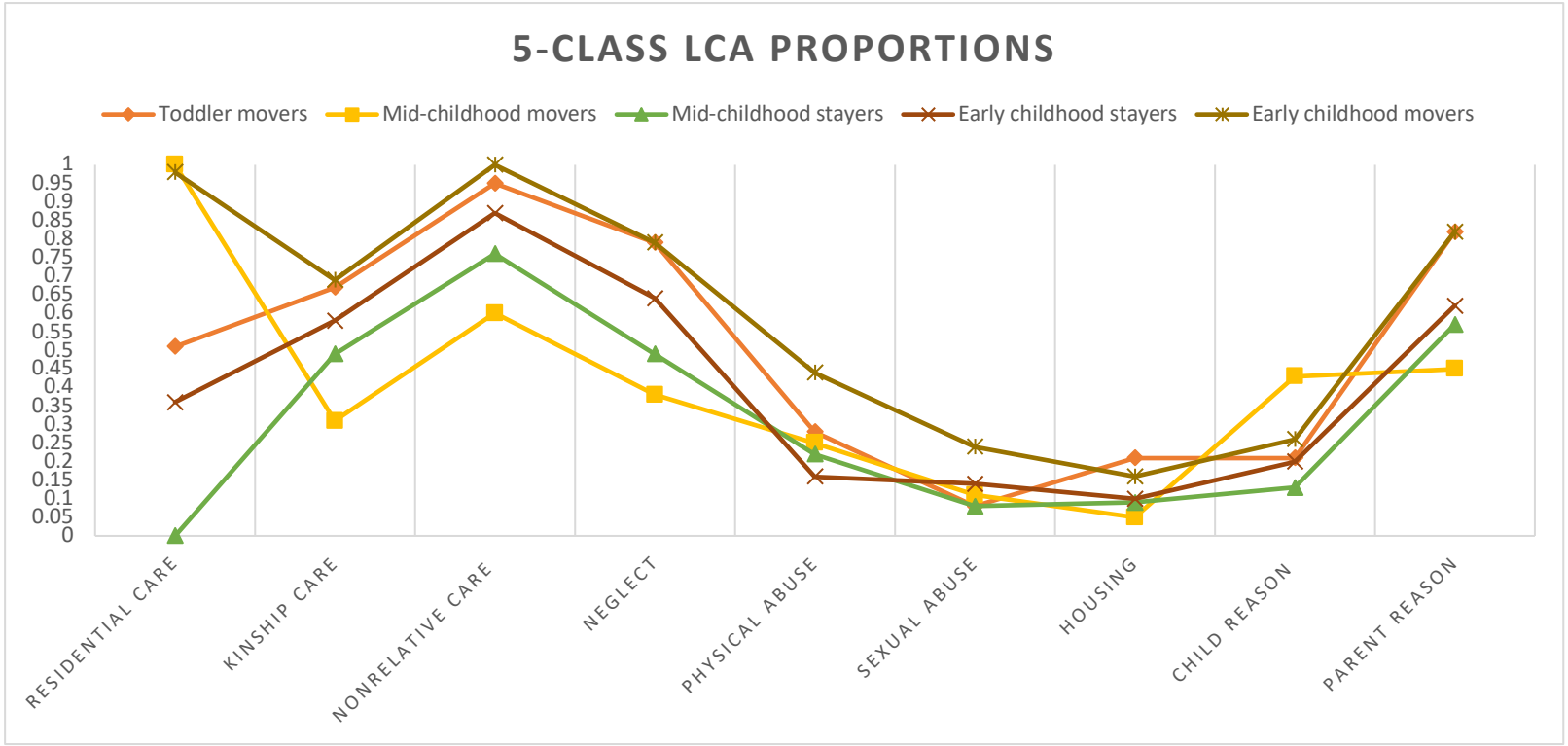


Figure 12. *LCA Categorical Probability for Average Dataset*

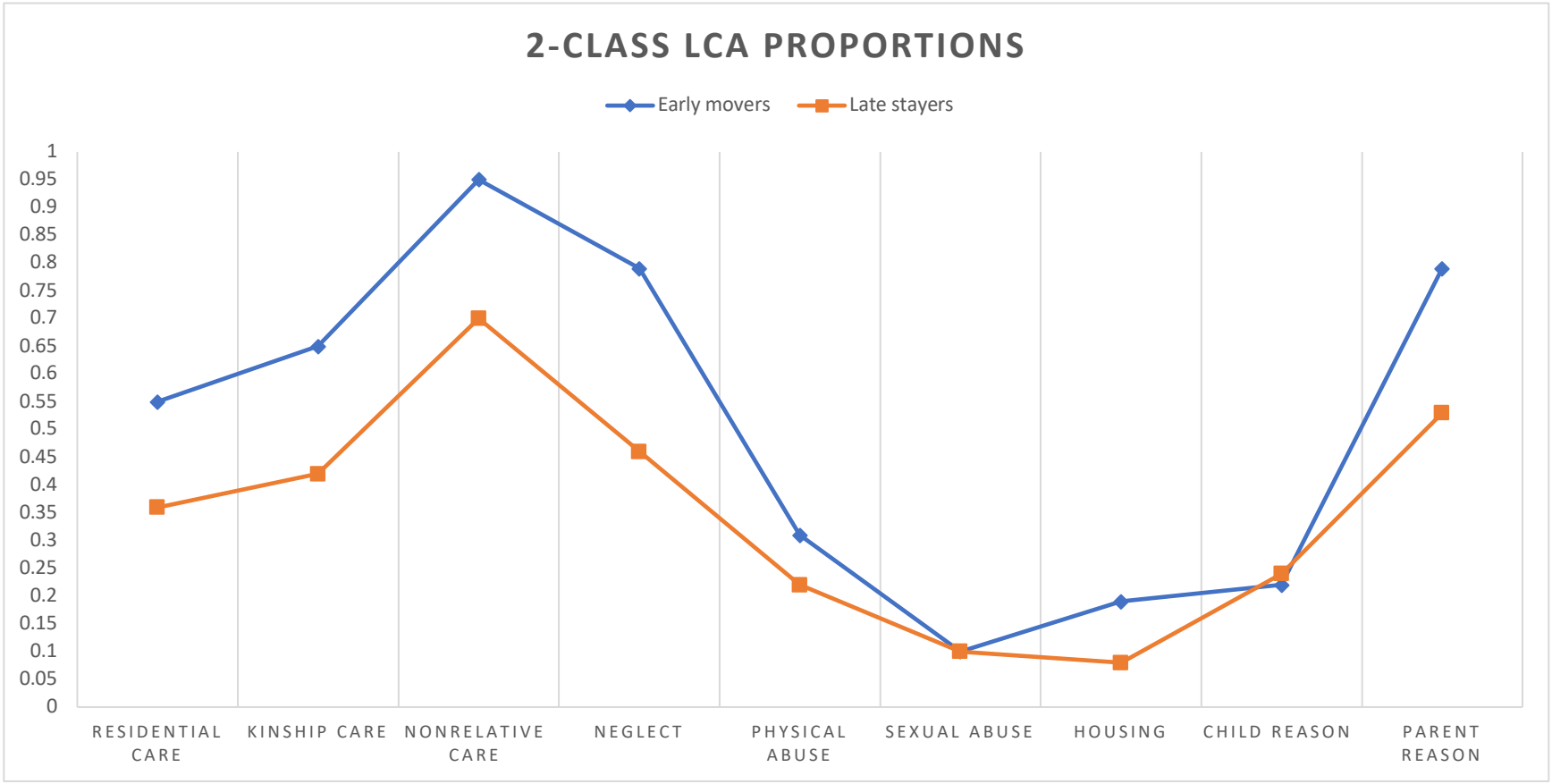


Table 13. *Number of Crossover Youth by Latent Class*

	Number of Crossover Youth Present
All Dataset	
Toddler Movers	78
Mid-childhood Movers	47
Mid-childhood Stayers	62
Early Childhood Stayers	15
Early Childhood Movers	132
Average Dataset	
Early Movers	89
Later Stayers	245

Table 14. *Summary of Significant Results by Multiverse Dataset*

	All Dataset		First Dataset		Average Dataset	
Coding Cutoff Criteria	Cutoff date for crossover youth is crossover date Cutoff date for non-crossover youth is 18th birthday		Cutoff for everyone is earliest date of crossover		Cutoff date is average date of all youth's crossover for everyone except those who crossed over before that date For those youth, cutoff date is their crossover date	
	Risk Factor	Protective Factor	Risk Factor	Protective Factor	Risk Factor	Protective Factor
Research Question 1: Logistic Regression Predicting Risk of Crossover	Removal for: Physical abuse Parent reason Child reason Adolescent school mobility American Indian/ Alaska Native Sex (male)		Removal for: Parent reason Child reason American Indian/ Alaska Native Special Education	Placement in non-relative care	Placement in residential care Removal for: Physical abuse Parent reason Child reason Adolescent school mobility American Indian/ Alaska Native Sex (male)	CPS involvement
Research Question 2: Survival Analysis Predicting Timing of Crossover	Placement in residential care Removal for: Parent reason Child reason American Indian/ Alaska Native Sex (male) Special Education	Asian/ Pacific Islander	Removal for: Physical abuse Child reason American Indian/ Alaska Native Sex (male) Special Education	Placement in non-relative care	Placement in residential care Removal for: Parent reason Child reason American Indian/ Alaska Native Sex (male) Special Education	Asian/ Pacific Islander
	Description of Classes		Description of Classes		Description of Classes	
Research Question 3: Latent Class Analysis	5 classes Toddler Movers (n = 181) Mid-childhood Movers (n = 260) Mid-childhood Stayers (n = 436) Early childhood Stayers (n = 56) Early childhood Movers (n = 48)		Not conducted due to small sample size		2 classes Early Movers (n = 248) Late Stayers (n = 731)	