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THE EFFECT OF CARETAKER SEPARATIONS ON INDIGENOUS
ADOLESCENTS

by

Melissa L. Welch

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THE EFFECT OF CARETAKER SEPARATIONS ON INDIGENOUS
ADOLESCENTS

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University of Nebraska, 2011

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The family instability hypothesis has been researched among the general population as well as among African American and Mexican American populations, but not yet among Indigenous families. The purpose of this research was to examine whether experiencing separations from their caretakers (lasting at least one month), and the types of living arrangements that follow, affect Indigenous adolescents' risk of meeting criteria for an internalizing, externalizing, or substance use disorder. Diagnostic criteria were assessed in Wave 6 using the Diagnostic Interview Schedule for Children-Revised (DISC-R). The hypothesis that as the number of lifetime separations increases, the risk of meeting criteria for each of these three disorders also increases was tested using six waves of data from a sample of 572 Indigenous adolescents. The type of environments that adolescents moved into after separations that occurred during the study were assessed and categorized as either an always normative (relative care) or at least one non-normative (non-kin foster care or institutional settings) environment. Logistic regression results showed very little support for the family instability hypothesis, since the number of lifetime caretaker separations was not significantly related to meeting criteria for any type of disorder. However, this study found that moving into at least one non-normative

environment after a separation experienced during the study was associated with higher odds of meeting criteria for externalizing or substance use disorders, but moving into normative environments after each separation did not significantly affect any of the three types of disorder diagnosis. This study found strong evidence that Indigenous adolescents benefit when extended family fill the primary caregiving role in the absence of the primary caretaker. The important programming and policy implications are discussed.

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TABLE OF CONTENTS

Chapter 1: Introduction	1
Chapter 2: Theoretical Framework & Literature Review	6
Chapter 3: Data & Methods	24
Chapter 4: Results	34
Chapter 5: Discussion & Conclusion	41
References	47

LIST OF MULTIMEDIA OBJECTS

Table 3.1 Attrition Analysis.....	27
Table 4.1 Descriptive Statistics.....	34
Table 4.2 Bivariate Correlations	35
Table 4.3 Model 1: Total # of Separations Predicting Disorder Diagnosis	37
Table 4.4 Model 2: Type of New Environment Predicting Disorder Diagnosis	39
Table 4.5 Summary of Hypotheses	40

CHAPTER 1: INTRODUCTION

Parents play an important role as attachment figures and coping resources in the lives of their children, especially when those children become adolescents (Adam and Chase-Lansdale 2002; Steinberg 2001). Adolescents are better equipped to navigate the challenges of this time period with consistent support from one or more caring parents or caretakers (Papini and Roggman 1992; Steinberg 2001). However, this consistent support is not always available. When instability or discontinuity is present in the relationship with parents, adolescents are more vulnerable to adjustment problems (Adam and Chase-Lansdale 2002; Capaldi and Patterson 1991; Kurdek, Fine and Sinclair 1994; Wu and Thompson 2001). Research has focused on instability stemming from changes in marital status or family structure, changes in residence, and physical caretaker separations (Ackerman et al. 1999; Adam & Chase-Lansdale, 2002; Kobak et al. 2001; Wu and Martinson 1993; Wu 1996). Instability in the parent child relationship is arguably the most extreme when there is a physical separation between a parent and their adolescent offspring, especially considering that a great deal of distress has been found to accompany even short-term separations from parents or caretakers (Kobak et al. 2001). According to family stress theory, the stress that accompanies these caretaker separations has a cumulative negative effect on children and adolescents (Hill 1958; Hill, Yeung and Duncan 2001; McLanahan 1985).

The instability, or multiple-transition, perspective originated as an explanation for the effects of divorce on children and has been supported by several studies during the past decade among the general population (Adam and Chase-Lansdale 2002; see Amato

2010 for a review; Fomby and Cherlin 2007; Wu and Thompson 2001). Put simply, the instability perspective views the number of changes in family environment as the central variable that affects children's well-being (Capaldi and Patterson 1991; Fomby and Cherlin 2007; Wu and Martinson 1993; Wu and Thompson 2001). There has been surprisingly little research concerning family instability, structure, or divorce among North American Indigenous families (Lonczak et al. 2007). In his most recent review of the divorce literature, Amato (2010) points out that there is ample potential for future research of the instability perspective and he also calls for further explanation of the factors that produce variability in children's post-divorce adjustment.

One of these factors could be the type of new environment that children move into after experiencing separations from their parents or caretakers. Using data from Waves 1-6 of the Healing Pathways Project (N=572), I explore the effects of separating from parents or caretakers on Indigenous children in two ways. First, I assess the relationship between the number of parent or caretaker separations experienced during early or middle adolescence and the occurrence of internalizing, externalizing, and substance using disorders during later adolescence among Indigenous families in the United States and Canada (i.e. American Indians and Canadian First Nations). Second, I assess whether the type of environment that an adolescent moves into after experiencing a caretaker separation affects the occurrence of internalizing, externalizing, and substance using disorders.

In order to address my second question, I categorize the type of new environment that an adolescent moves into after they experience a separation as either a normative

environment or a non-normative environment. Some participants separated from their primary caretaker (usually a parent) and moved in with their other parent, with their grandparents, or with another relative. These situations are relatively normative within Indigenous cultures (Garwick 2000; Mutchler, Baker and Lee 2007; U.S. Bureau of the Census 2003) and extended family relationships are often very close-knit (Bahr 1994; Fuller-Thomson 2005; Weibel-Orlando 1990). Research has shown that close extended family relationships provide support to children and adolescents during periods of stress (Fomby, Mollborn and Sennott 2010). Therefore, moves into another family member's care are deemed normative environments in the current study and these environments could help to protect against the harmful effects of instability. Other post-separation environments are less commonplace among Indigenous cultures, as well as among the current sample, like moves in with a non-relative, into foster care, or into an institutional setting (like group homes, runaway shelters, or detention centers). These types of environments, where an adolescent does not enter into a relative's care, are categorized as non-normative environments and they could be the most harmful consequences of familial disruption.

This study will make three contributions to the current literature. First, the effects of parent or caretaker separations and family instability have thus far only been studied among Caucasian, African American, and Mexican American adolescents (Adam and Chase-Lansdale 2002; Fomby et al. 2010; Kobak et al. 2001; Wu 1996; Wu and Martinson 1993) and significant differences have been found across racial and ethnic groups. There is currently no literature that focuses on the effects of any source of family

instability on American Indian or Canadian First Nation adolescents, yet nearly one-half (45.3%) of the adolescents in the sample reported experiencing a living situation separation from their parent or caretaker that lasted one month or longer at least once in their life before Wave 6 of data collection. If adolescent odds of disorder diagnosis increase as the number of caretaker separations increase, this study will provide support for the instability hypothesis operating among Indigenous families.

Second, I am not aware of any published reports examining changes in Indigenous adolescents' living situation. The current study will look specifically at the types of environments adolescents move into following a caretaker separation in order to compare the effects of certain types of separations on adolescent internalizing, externalizing, and substance use disorder diagnoses. This could provide insight to the protective effects of consistent social support and could help to inform policy that minimizes the stress inflicted upon adolescents following caretaker separations.

Third, prior research on caretaker separations has relied on the long term retrospective reports of adolescents (Adam and Chase-Lansdale 2002; Cavanagh 2008; Kobak et al. 2001; Wu 1996; Wu and Martinson 1993). The current study uses six waves of longitudinal data from the Healing Pathways Project, an eight wave longitudinal study that involved yearly interviews with an Indigenous adolescent and at least one of their primary caretakers, which accounts for past year living situation assessed in each of six years. This design allows for an improved operationalization of family structure history and does a better job of capturing family change as it is happening. In addition, the

current project utilizes retrospective reports of separations that may have occurred prior to Wave 1 of the study (i.e., prior to age 11 years for adolescents).

CHAPTER 2: THEORETICAL FRAMEWORK & LITERATURE REVIEW

STRESS THEORY, ATTACHMENT THEORY, & THE FAMILY INSTABILITY PERSPECTIVE

The majority of research concerning family instability has originated from the divorce literature. Researchers predict that between 43% and 46% of marriages will end in divorce (Schoen and Canudas-Romo 2006) and divorce is frequently associated with not just one but multiple changes in family structure (Capaldi and Patterson 1991; Fomby and Cherlin 2007). That is, children of divorce often experience not only the loss of one residential parent, but they also experience the subsequent remarriages and re-divorces of their custodial parent (Capaldi and Patterson 1991; Kurdek et al. 1994; Wu and Thompson 2001). These multiple changes can be stressful and have been shown to have deleterious effects on adolescent well-being. Fewer studies have included measures of physical separations between parents and their offspring (which can sometimes be a consequence of divorce), even though these physical separations have also been linked to negative consequences for adolescents (Ackerman et al. 1999; Adam and Chase-Lansdale 2002; Wu 1996; Wu and Martinson 1993). The current study focuses on caretaker separations, or physical living situation separations between adolescents and their parents or caretakers that last for at least one month (following Kobak et al. 2001). According to stress theory, attachment theory, and the instability hypothesis, these caretaker separations could have adverse consequences on adolescents both psychologically and behaviorally.

There are two overarching theoretical ideas from the family literature that go hand in hand and will be helpful for understanding why caretaker separations and instability may be linked to meeting criteria for adolescent mental disorders—attachment theory (Ainsworth and Bowlby 1991) and family stress theory (Hill 1958). These two theoretical ideas have shaped the family instability hypothesis, which more specifically predicts how children will be affected by multiple changes or disruptions in their family environments.

Attachment theory, which was developed by John Bowlby and Mary Ainsworth, originally sought to explain the relationship between a parent (usually the mother) and their young child (Ainsworth and Bowlby 1991). Bowlby articulated the basic theory that in order to grow up with a healthy mental state, the infant needs to experience a “warm, intimate, and continuous relationship with his mother” (Bowlby 1951) and Ainsworth empirically tested this theory by developing the “Strange Situation” procedure (Bretherton 1992). Bowlby (1988) explained that attachment behavior is most obvious in early childhood, but it certainly continues throughout the life cycle, especially in stressful situations. Despite this, most early attachment studies have focused on very young children (Bretherton 1992; Kobak 1999 for a review; Kobak et al. 2001) and there is a deficiency in studies on children who have suffered traumatic loss of attachment figures or who have been adopted after infancy (Greenberg 1999). This gap is especially profound considering that in 2009, an estimated 423,773 children lived in foster care, which is a living situation that is almost always indicative of a disrupted attachment relationship (Child Welfare Information Gateway 2011).

Kobak et al. (2001) were some of the first researchers to fill this deficit by examining attachment disruptions in school-aged boys. They found that both unplanned disruptions lasting one month or longer and complete losses of the parent (due to death or complete absence of contact) were closely linked to serious emotional disturbance. These authors concluded that these attachment disruptions were seriously traumatic and stressful, making it difficult for the child to cope (Kobak et al. 2001). When attachment figures are perceived as being unavailable, a logical consequence of caretaker separation, the child often responds with fear, sadness, and anger (Kobak 1999). Adolescents with weaker attachment to their parents have been shown to be more depressed and anxious than adolescents with stronger attachment relationships (Papini and Roggman 1992). Physical caretaker separations will likely lead to weaker attachment relationships between parents and adolescents, and these weakened attachment relationships could leave adolescents vulnerable to internalizing, externalizing, and substance use disorders.

Prolonged disruptions in the parent-child attachment relationship have been defined as stressful (Greenberg 1999; Kobak 1999; Kobak et al. 2001) and disruptions in their parents' marital situation have also been shown to be a major source of stress for children (Wallerstein and Kelley 1980). In the context of family stress theory, these stressors, or crisis provoking events, are expected to interact with a family's crisis meeting resources (like income, family integration, and family adaptability) and with the meaning that family members give to the stressful event in order to influence the amount of crisis that exists in a family (Hill, 1958; Lavee, McCubbin and Patterson 1985; McCubbin et al. 1980; Patterson 2002). Various researchers (Hill, Yeung and Duncan

2001; McLanahan 1985) tested the stress theory, or the idea that changes in family life is the primary cause of negative child outcomes rather than the type of stable family structure. McLanahan (1985) found support for the stress theory—long term parent absence had little effect on high school completion but adolescents who experienced the most recent changes in family structure (disruptions occurring within one year) were the least likely to still be in high school or graduate from high school. Hill et al. (2001) provided similar support for stress theory—that change in family structure (parents’ marital status) had a greater effect on adolescents’ years of schooling and risk of premarital birth than the type of family structure they lived in.

The same argument, that family change has more of an effect on child and adolescent well-being than the type of family structure they live in, has also been made more recently, though by testing a hypothesis of a different name—the family instability hypothesis. The family instability hypothesis (Fomby and Cherlin 2007), which is also known as the instability and change hypothesis (Wu 1996; Wu and Martinson 1993), and as the cumulative effects hypothesis (Capaldi and Patterson 1991; Kurdek et al. 1994), predicts that children or adolescents who experience multiple changes in their family situation will be worse off than those raised in stable households. The supposition is that children and their custodial parents form a functioning family system. Each change or disruption in the family environment is a major stressor and the accumulation of stressors puts children and adolescents at an increased risk for adjustment problems (Hill 1958; McLanahan 1985). Put simply, *change in family environment*, rather than the structure of the family environment, is what really matters in terms of adolescent well-being (Wu

1996; Wu and Martinson 1993; Wu and Thomson 2001). Experiencing disruptions in attachment relationships, which almost certainly accompany physical caretaker separations, may be akin to the effects of serious trauma (Kobak 2001) and may create uncertainty about the degree of trust and consistent support in the relationship (Bowlby 1988). The overarching theoretical idea is that children are adversely affected by the stress of familial disruption and change, as well as by the subsequently weakened attachment relationships.

The adverse effects of family disruption stemming from divorce as well as from caretaker separations have been shown to exist in various domains of child and adolescent well-being. Researchers theorize that repeated separations from attachment figures may result in behavioral disturbances and intellectual, social, and emotional problems (Brody, Neubaum and Forehand 1988). As predicted, children and adolescents with two or more parenting transitions displayed significantly more adjustment problems than those with fewer transitions in the areas of health, academic achievement, self-esteem, self-mastery, depression, delinquency, antisocial behavior, drug abstinence, arrest history, and peer relations (Capaldi and Patterson 1991; Cavanagh and Huston 2006; Kurdek et al. 1994; Sun and Li 2009). White children who experienced multiple family structural transitions displayed significantly more externalizing behavior and delinquency than their stable counterparts (Fomby and Cherlin 2007). Hoffmann, Cerbone, and Su (2000) documented that for adolescents, the cumulative effect of stressful life experiences (including parental divorce/separation and changes in residence) over time led to a sharper acceleration of drug use. Sun and Li (2002) suggest that psychological well-

being is more responsive to the stresses associated with disruptions in the family system than more cumulative outcomes like academic achievement.

Similarly, family instability in the form of physical caretaker separations (e.g., parent in jail, death of a parent, or adolescent moving out of the parent's home) has been linked with a wide range of child and adolescent adjustment problems. These problems include higher risk of a pre-marital birth (Adam and Chase-Lansdale 2002; Wu 1996; Wu and Martinson 1993), more externalizing problems (Ackerman et al. 1999; Adam and Chase-Lansdale 2002), and more dissociative symptoms (Kobak et al. 2001). Clearly, prior research has established the link between family instability or caretaker separations and adolescent's symptoms of internalizing, externalizing, and substance use disorders. It seems only logical, then, that the stress, the weakened attachment relationship, and the repeated stresses from experiencing one or more caretaker separations will make adolescents more susceptible to internalizing, externalizing, and substance use disorders in later adolescence.

While there has been a great deal of evidence supporting the instability hypothesis among the general population, some studies have found that the effects of family instability differ markedly by race (Fomby and Cherlin 2007; Fomby et al. 2010; Wu and Thomson 2001). Fomby and Cherlin (2007) found that for white adolescents, experiencing more family transitions was significantly associated with more problem behaviors and lower cognitive achievement, while there was no significant effect among black adolescents. Similarly, for white adolescent girls, more changes in family situation are consistently associated with their risk of first sexual intercourse, yet there was no

association for African American adolescent girls (Wu and Thomson 2001). There is a dearth of research looking at the effects of family change and caretaker separations among Indigenous populations. In order to explain the differences between white, African American, and Hispanic American families, however, researchers speculate that the roles of extended kin in African American families mediate the effects of multiple transitions by providing additional emotional support to children (Fomby and Cherlin 2007; McLoyd 2000). This could very well be the case, as both African American and Hispanic American adolescents have greater access to social protection than their white counterparts (Fomby et al. 2010).

This leads to the question of whether there are normative environments that Indigenous adolescents move into after separating from their primary caretaker that provide additional emotional support and social protection to children. If there are normative environments that foster more support, caring, and consistency to adolescents, they could serve as buffers against the sometimes harmful effects of caretaker separations.

NEW ENVIRONMENTS

The second research question of the proposed study seeks to understand whether internalizing, externalizing, and substance use disorder diagnoses change based on the type of new environment that an adolescent moves into after a caretaker separation. There are a multitude of possible new environments that an adolescent could move into after experiencing a caretaker separation. For example, some adolescents move away

from their primary caretaker (usually a parent) and in with their other parent, in with their grandparents, or in with other relatives. Fewer adolescents separate from their primary caretaker and move in with a non-relative, into foster care, or into an institutional setting (which includes places like group homes, boarding schools, treatment centers, runaway shelters, and detention centers). In the current project, the various types of separations are labeled as normative or non-normative.

Normative separations account for any move into a new environment where relatives serve as the new primary caregivers. The term “normative” is used to categorize these new environments because extended family relationships are especially important in the lives of Indigenous adolescents and these relationships often become co-residential. Often, the extended family members that care for children or adolescents are grandparents.

Historically, Lakota grandparents always raised at least their first grandchild, because they had more experience and more to teach the grandchildren (Weibel-Orlando 1990). Today, there is still evidence of this tradition persisting, despite numerous assaults from the dominant culture. Among the Ojibwe, for instance, grandparents often co-parent their first grandchild, who benefits from their grandparents’ wisdom (Fuller-Thomson 2005). American Indian families rely much more heavily on grandparents than the general U.S. population—about 56% of American Indian and Alaska Native grandparents were the primary caregivers for their grandchildren, compared to 20% of Asians, 35% of African Americans, and just 2% of Non-Hispanic Whites (U.S. Bureau of the Census 2003). Grandparent care is especially common on reservations (Mutchler et

al. 2007; U.S. Bureau of the Census 2003) because in most Indigenous tribes, it is expected that grandparents will play a major role in the physical care and teaching of their grandchildren (Bahr 1994).

Indigenous grandparents are almost always seen as cultural resources for their children and grandchildren (Weibel-Orlando 1990). That is, grandparents, or elders, are responsible for teaching the traditional way of life to the youngest generation (Weibel-Orlando 1990). They have had more life experience and their children benefit because of it (Bahr 1994). Unsurprisingly, among some American Indian tribes, family members (such as siblings, grandparents, aunts, uncles, and cousins) play fundamental roles in caring for children with chronic conditions and have close emotional ties to these children (Garwick 2000). This data indicate that intergenerational ties remain strong and influential.

It has been suggested that these close extended family relationships insulate children from the impacts of parental separation because extended kin provide both emotional and instrumental support to children during periods of stress (Fomby et al. 2010). This social protection has been found to weaken the effect of family instability caused by divorce on adolescent delinquency among Caucasians, African Americans, and Mexican Americans (Fomby et al. 2010). Researchers suggest that Indigenous children who have never been in the custody of grandparents are disadvantaged because of it (Bahr 1994; Weibel-Orlando 1990). Furthermore, adolescents who move into normative new environments maintain familiar adult attachments, which ought to help them cope. For these reasons, it is anticipated that Indigenous adolescents who move in to the care of

extended kin (i.e., experience a normative separation) will benefit from the additional social support and will be less affected by caretaker separations than adolescents who move into some other type of environment.

Other types of new environments may be less commonplace, like foster care, group homes, or institutional environments. Environments where the new primary caregiver is not related to the adolescent are categorized here as non-normative environments. Adolescents who move into non-normative environments may very well lose close contact with all of their familiar adult attachment figures and this loss could manifest as psychological or substance use disorders.

Non-kin family foster care or institutional settings, like boarding school, group homes, or treatment centers are often indicators of a forced separation from the parent or caretaker (Clausen et al. 1998; McIntyre and Kessler 1986). These forced separations are thought to be especially harmful in terms of behavioral deficits and psychological distress (Kobak et al. 2001; McIntyre and Kessler 1986). That is, a child placed in non-kin foster care is nearly nine times more likely than a home-reared child to manifest psychopathology (McIntyre and Kessler 1986). It is estimated that approximately one-half of children in foster care manifest clinical internalizing and externalizing psychological disorders (Clausen et al. 1998; McIntyre and Kessler 1986; Newton, Litrownik and Landsverk 2000). More specifically, adolescents with a history of non-kin foster care placement displayed more symptoms of major depression (Clausen et al. 1998; Pilowsky and Wu 2006) and were four times more likely to have attempted suicide in the past twelve months than those never placed in foster care (Pilowsky and Wu 2006).

These findings could be attributable to the possible maltreatment that brought these children to the attention of Child Protective Services, to the negative effect of separation from their family (Clausen et al. 1998), and to the instability hypothesis, as research indicates that multiple foster care placements have negative effects on children's internalizing and externalizing behaviors (Newton et al. 2000).

Non-kin foster care is thought to be inferior to kinship care for a few reasons. First, children in non-kin foster care are less likely to maintain contact with their biological parents than those in kinship care (Duerr-Berrick 1997). Placement with strangers in an unknown environment is avoided with kinship care and kinship care preserves the child's racial and ethnic identity (Dubowitz 1994). Moreover, children in non-kin foster care have been shown to have significantly poorer well-being and significantly lower levels of self-esteem than children in kinship care (Metzger 2008).

Other new environments that are categorized here as non-normative include institutional settings, like treatment centers, boarding schools, or group homes. Research has documented that more than one-third (39.5%) of sampled adolescents living in public systems of care (like mental health facilities, juvenile justice centers, child welfare agencies, and alcohol or drug treatment centers) met criteria for at least one substance use disorder in their lifetime, and about one-quarter (24.1%) met criteria for a substance use disorder in the past year (Aarons et al. 2001). Adolescents living in congregate care have more than double the odds of adolescents living in foster care of ever having met criteria for a substance use disorder (Vaughn et al. 2007). Similarly, youth placed in institutional settings (group homes, drug/alcohol rehabilitation centers, psychiatric treatment centers,

juvenile detention centers, or jail) had significantly more impairment in behavioral, cognitive, educational, and psychological functioning than youth in non-kin family foster care (Hodges, Gates and Liao 1999).

Unmistakably, these are meaningful differences in the type of environment an adolescent moves into following a caretaker separation. These differences warrant the investigation of the effects of specific types of new environments on adolescent internalizing, externalizing, and substance use disorder diagnoses. It could be that adolescents who experience one or more caretaker separations and subsequently move into a non-normative environment will be the most vulnerable to internalizing, externalizing, and substance use disorders.

CONTROLLING FOR DEMOGRAPHIC CHARACTERISTICS

Certain family and demographic characteristics are thought to contribute to poor adolescent outcomes (Adam and Chase-Lansdale 2002; Wu 1996). One of these characteristics is family income. Economic disadvantage typically accompanies caretaker separations, and this disadvantage could explain the negative adolescent outcomes (Adam and Chase-Lansdale 2002; Wu 1996), considering that family financial problems have been linked to adolescent alcohol initiation (Lonczak et al. 2007) and educational attainment (McLanahan 1985). Sun and Li (2002) report that significant financial disadvantage exists among families who experienced a marital disruption and that this financial disadvantage at least partially accounts for the detrimental effects of

family disruption. It is important to account for the likely difference in income between stable and volatile families.

Additionally, the effects of family instability have been shown to vary according to the developmental stage in which they occurred, and no real consensus has been reached (Adam and Chase-Lansdale 2002; Chase-Lansdale, Cherlin and Kiernan 1995; Hetherington 1989; Wallerstein and Kelley 1980; Woodward, Fergusson and Belsky 2000). Woodward et al. (2000) found that the younger the child was when their parents separated, the weaker their attachment was to their parents, suggesting that the impact of divorce is more severe among children who are younger when it happened. On the other hand, Chase-Lansdale et al. (1995) found that later divorces (between the ages of 11-16 years) were more harmful to well-being than earlier divorces (between the ages of 7-11 years). It appears that research has linked different outcomes with different age groups—the number of physical caretaker separations an adolescent experienced in early childhood has been associated with educational, externalizing, and sexual behavior outcomes. Separations experienced while the child was school-aged were associated with externalizing and sexual behavior outcomes, while separations experienced during adolescence were only associated with externalizing problems (Adam and Chase-Lansdale 2002). In light of these findings, the current study controls for adolescent age.

Research concerning the effects of family instability stemming from divorce based on gender has also yielded inconsistent results. In their reviews, Amato and Keith (1991) and Amato (2001) conclude that divorce affects boys and girls similarly, despite what the authors deem “modest support” that divorce has a stronger effect on boys. It

seems that any gender differences that may exist are domain specific. In the areas of health (Kurdek et al. 1994) and academic achievement (Kurdek et al. 1994; Sun and Li 2009), multiple family transitions were found to have a more profound effect on girls compared to boys. Studies concerning children's and adolescents' problem behaviors found that boys were more susceptible to the effects of their parent's divorce than girls (Block, Block and Gjerde 1986; Hetherington 1989; Morrison and Cherlin 1995). These authors suggest that girls manifest stress internally while boys react externally. Other studies have found no significant differences between boys and girls in the effects of parental separation (Woodward et al. 2000). For these reasons, it is important to control for adolescent gender when examining internalizing disorders, externalizing disorders, and substance use disorders.

Thus, the current study controls for per capita family income, adolescent age, and gender. This study will provide support for the instability hypothesis if the effects of caretaker separations and the type of separations supersede those of age, gender, and family income.

STATEMENT OF THE PROBLEM

While considerable variation exists in the methodologies, populations, measures, and the findings concerning the domains of instability effects in previous research, the take-home message is clear—that repeated separations from primary caretakers are in some way detrimental to the welfare of children and adolescents. Repeated separations weaken attachment relationships and leave adolescents uncertain about the degree of trust and consistent support present in the relationship with their parents or other important

adults. This could leave them unable to cope with the stress that comes from their volatile family environment and more vulnerable to psychological and behavioral disorders. What is more, the effects of instability will likely change depending upon the type of new environment that an adolescent moves into after a separation. Adolescents who move into the care of grandparents or other relatives should be protected against the harmful effects of instability because they maintain familiar attachment relationships and likely have more emotional and social support. The additional support and stronger attachments should leave adolescents better equipped to handle the stress of caretaker separations.

The present study seeks to test the idea that repeated caretaker separations are harmful together with the idea that the environment adolescents move into after they experience a separation could either buffer or exacerbate this negative effect. In addition, this study seeks to further understand which domains of well-being are influenced by caretaker separations and new environments. Specifically, this investigation will examine the associations between caretaker separations lasting one month or longer and adolescent diagnosis of internalizing, externalizing, and substance use disorders in a sample of Indigenous adolescents from the Northern Midwestern United States and Canada. It will also determine whether the risk of developing these disorders changes depending on the type of new environment that an adolescent moves into—a normative environment (relative care) or a non-normative environment (non-relative care or institutional environments). Analyses control for the effects of family demographic characteristics like income, adolescent age, and adolescent gender.

This study will make three contributions to the current literature. First, the effects of parent or caretaker separations have thus far only been studied among Caucasians, African Americans, and Hispanic Americans (Adam and Chase-Lansdale 2002; Fomby et al. 2010; Kobak et al. 2001; Wu 1996; Wu and Martinson 1993). There is currently no literature that focuses on the effects of any source of family instability on Indigenous adolescents, yet more than one-quarter (26.6%) of the sampled adolescents reported experiencing a caretaker separation at least once before they were about 15 years old. Second, there is no literature that examines the changes in an adolescent's family environment in so much detail, in order to understand if certain types of separations are more detrimental than others to adolescent internalizing, externalizing, and substance use disorder diagnoses. Third, prior research on caretaker separations has relied on the long term retrospective reports of adolescents (Adam and Chase-Lansdale 2002; Kobak et al. 2001; Wu 1996; Wu and Martinson 1993). Using six waves of longitudinal data from the Healing Pathways Project, this study evaluates how past year caretaker separations assessed at five consecutive years (Waves 1-5) during adolescence in addition to retrospective reports of caretaker separations before the study began (age 10) affects later adolescent diagnosis of an internalizing, externalizing, or substance use disorder (Wave 6).

Based on attachment theory, family stress theory, and the instability hypothesis, this project tests the following hypotheses:

Hypothesis 1a: The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later (age 16 years) meeting diagnostic criteria for an internalizing disorder.

Hypothesis 1b: The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later (age 16 years) meeting diagnostic criteria for an externalizing disorder.

Hypothesis 1c: The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later (age 16 years) meeting diagnostic criteria for a substance use disorder.

Hypothesis 2a: Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria (age 16 years) for an internalizing disorder.

Hypothesis 2b: Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria (age 16 years) for an externalizing disorder.

Hypothesis 2c: Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria (age 16 years) for a substance use disorder.

Hypothesis 3a: Among adolescents who experienced one or more caretaker separations that resulted in a move to at least one non-normative environment, there will be a significant and positive association with the odds of later meeting criteria (age 16 years) for an internalizing disorder.

Hypothesis 3b: Among adolescents who experienced one or more caretaker separations that resulted in a move to at least one non-normative environment, there will be a significant and positive association with the odds of later meeting criteria (age 16 years) for an externalizing disorder.

Hypothesis 3c: Among adolescents who experienced one or more caretaker separations that resulted in a move to at least one non-normative environment, there will be a significant and positive association with the odds of later meeting criteria (age 16 years) for a substance use disorder.

CHAPTER 3: DATA & METHODS

DATA

The population of the study is Indigenous families living in the northern Midwest and Canada. The unit of analysis for the proposed study is individual Indigenous adolescents living in the northern Midwestern United States and Canada. The data comes from a longitudinal eight-wave study completed on four reservations in the northern Midwest and four Canadian First Nations reserves that involved yearly interviews with adolescents (aged 10-12 years in Wave 1) and at least one primary caretaker. The current analysis will use data from Waves 1, 2, 3, 4, 5, and 6. Wave 1 data were collected on two U.S. reservations and one Canadian reserve from February through October 2002, and from a closely related study on two U.S. reservations and three remote Canadian reserves February through October 2003. There was a similar 1-year lag between study sites for each subsequent wave of data collection, where Wave 6 data was collected during 2007 and 2008.

Three of the Canadian Reserves are classified as remote in that they are considerable distances from even small towns and are accessed by unpaved roads. All of the reserves and reservations share a common cultural tradition and language with minor regional variations in dialects. This sample is not generalizable to the entire population of Indigenous families in the United States and Canada. There is an incredible amount of cultural and tribal variation among Indigenous peoples in the United States and Canada. Nevertheless, the sample is representative of one of the most populous Indigenous cultures in the northern Midwestern United States and Canada.

The project was designed in partnership with the participating reservations and reserves. Before the application funding, the research team was invited to work on these reservations, and tribal resolutions were obtained. As part of the agreement to work together, the researchers maintain the confidentiality of participating reservations in published reports. On each participating reservation, an advisory board was appointed by the tribal council. Advisory boards were responsible for advising regarding difficult personnel problems, questionnaire development, and ensuring that published reports were respectful and protected the identity of the respondents and the culture. Upon advisory board consensus of the questionnaires, the study procedures and questionnaires were submitted for review by the university Institutional Review Board for approval.

Participating staff on the reservations were approved by the advisory board and were either tribal members or, in a few cases, non-members who were spouses of tribal members. To ensure quality of data collection, all the interviewers underwent special training that included practice interviews and feedback sessions regarding interview quality. In addition, all of the interviewers completed a required human subjects protection training that emphasized the importance of confidentiality and taught procedures to maintain the confidentiality of data.

Prior to this project, each tribe provided a list of families of enrolled children ages 10 to 12 years who lived on or near (within 50 miles) the reservation or reserve, which served as the sampling frame. Researchers on this project made attempts to contact all of the families with a target child within the specified age range. Families were recruited with a personal visit by an indigenous interviewer at which time the project was

explained to them. They were then presented with a traditional gift and invited to participate. If they agreed to be interviewed, then each family member received \$40 for their time when the interviews were completed.

There are a few potential sources of representation error in the study. Location is a potential source of coverage error. The sampling frame excluded tribally enrolled families living more than 50 miles from a reservation. As a consequence, the sample potentially underrepresents these individuals. The recruitment procedure resulted in an overall response rate of 79.4%. A total of 747 families were interviewed in Wave 1. As with any longitudinal research project, not all 747 of the initially interviewed adolescents participated in each year of data collection. By Wave 6, 655 adolescents were interviewed, 87.7% of the initial sample.

The current study employs a sample of 572 adolescents who participated in all of the first six waves of data collection (76.6% of the initial sample). 175 cases were excluded because they were not interviewed in all of the first six waves and mean imputation was not used because the project could not assign some adolescents values on very personal items like how many times they lived away from their parents or caretakers. The current sample is 50.9% female and 49.1% male. The participants were an average of 11 years old during the initial interview and their families had an average per capita income of \$5,132. T-Tests were performed on all continuous variables (income, age, total number of caretaker separations) and Chi-Square tests were performed on dichotomous variables (gender, Wave 1 disorders, and type of environments). Based

on the attrition analysis (Table 3.1), there were no significant differences between the individuals in the current sample and those who were excluded due to attrition.

Table 3.1. Attrition Analysis

Variable	Current Sample (N=572)	Lost Due to Attrition (N=175)
Total # of Caretaker Separations	1.18	1.14
Normative Environments Only	24.80%	26.30%
At Least 1 Non-Normative Environment	10.00%	9.10%
Age	11.06	11.18
Female	50.90%	48.30%
Per Capita Family Income	\$5,132	\$5,265
Prior Internalizing Disorder	3.90%	5.70%
Prior Externalizing Disorder	20.70%	25.30%
Prior Substance Use Disorder	3.00%	5.20%
Internalizing Disorder (W6)	4.90%	4.80%
Externalizing Disorder (W6)	11.10%	7.20%
Substance Use Disorder (W6)	28.40%	37.30%

MEASURES

Independent Variables

The focal independent variables for this project are measured in two different ways. The first is a broad measure of *total number of caretaker separations*, operationalized using caretaker responses to four questions (the first three were only asked only at Wave 1): “Has there ever been a period of 1 month or longer that [NAME OF ADOLESCENT] did not live with you?” If the caretaker responded “yes” to this question, they were subsequently asked: “Have there been other periods of 1 month or longer that [NAME OF ADOLESCENT] lived somewhere else?” If there had been more than one period of time (1 month or longer) when the child did not live with them, they

were then asked to specify how many times. During the study (Waves 1-5), caretakers were asked: “During the past year, has [NAME OF ADOLESCENT] lived with this family all of the time, or split time between two or more living situations?” This variable is recoded such that adolescents who lived with the same family all of the time in the past year are given a value of 0 and adolescents who experienced a split living situation in the past year that lasted at least one month are given a value of 1. Using these three questions, the *total number of caretaker separations* measure is calculated by adding up the total number of times adolescents lived away from their caretakers for a month or longer before Wave 1 and the total number of years during Waves 1-5 of the study that they experienced a split living situation lasting one month or longer. The *total number of caretaker separations* measure ranges between 0 and 19 times. Close to one-half of participants (N=251) experienced at least one caretaker separation.

The second focal independent variable is a more specific measure of *the type of environment* that an adolescent moves into after a caretaker separation, operationalized using the following question that was asked of caretakers if they reported a split living situation: “Where did [NAME OF ADOLESCENT] live?” The open ended responses were coded into two categories of new environments—*only normative environments* and *at least one non-normative environment*. Each category is a mutually exclusive dichotomous variable, with a score of 1 indicating that an adolescent experienced that living situation during Waves 1-5 and a score of 0 indicating that an adolescent never experienced that living situation during Waves 1-5. *Only normative environments* consist of adolescents who moved in with their other parent, their grandparents, or with other

relatives every time they experienced a caretaker separation (N=142). The *at least one non-normative environment* category includes adolescents who moved into foster care, an institutional setting (like group homes, boarding school, or treatment centers), or in with non-relatives at least once during the study. If adolescents separated from their primary caretaker one or more times and moved into a non-normative environment at least one of these times, they were given a value of 1 for the *at least one non-normative environment* variable (N=57). This includes 28 adolescents who experienced both a normative and a non-normative separation, because, based on the literature, leaving the family umbrella could be the biggest risk factor for Indigenous adolescents. Adolescents who experienced *only normative environments* and *at least one non-normative environment* were compared to the omitted category of *stable* adolescents. *Stable* adolescents (N=373) did not experience a split living situation during Waves 1-5 of the study.

Dependent Variables

There are three focal dependent concepts in this project—meeting diagnostic criteria for an internalizing disorder, an externalizing disorder, and a substance use disorder. All of these focal dependent variables were assessed using DSM-IV diagnostic criteria at Wave 6 and are dichotomous variables. The DSM-IV criteria are widely used within the scientific community (American Psychiatric Association 2000).

Internalizing disorder diagnosis includes adolescents who met DSM-IV diagnostic criteria for at least one of the following internalizing syndromes assessed using Wave 6 adolescent report: (1) past year Generalized Anxiety Disorder, (2) past year

Mood Disorder, (3) past year Major Depressive Disorder, or (4) past year Dysthymic Disorder. If adolescents met criteria for any of these internalizing disorders, they were given a value of 1 for internalizing disorder diagnosis and those who did not meet criteria were given a value of 0. In Wave 6, 28 adolescents met criteria for a past year internalizing disorder diagnosis. *Externalizing disorder diagnosis* includes adolescents who met DSM-IV diagnostic criteria for at least one of the following disorders assessed using Wave 6 youth report: (1) past year Attention-Deficit Hyperactivity Disorder, (2) past year Oppositional Defiant Disorder, or (3) past year Conduct Disorder. Although Attention-Deficit Hyperactivity Disorder is not an externalizing disorder, it is grouped under the externalizing umbrella because it is categorized by the DSM-IV as an Attention-Deficit and Disruptive Behavior Disorder, along with Conduct Disorder and Oppositional Defiant Disorder. In addition, prior research has categorized ADHD as an externalizing disorder for analytic purposes (King et al. 2004; Whitbeck et al. 2008; Whitbeck and Crawford 2009), and this project does not test stand-alone disorders as dependent variables. In Wave 6, 63 adolescents met criteria for a past year externalizing disorder. *Substance use disorder diagnosis* includes adolescents who met DSM-IV diagnostic criteria for at least one of the following disorders assessed using Wave 6 youth report: (1) past year Alcohol Abuse without dependence, (2) past year Alcohol Dependence, (3) past year Marijuana Abuse without dependence, (4) past year Marijuana Dependence, (5) past year Nicotine Dependence, (6) past year Other Substance Abuse without dependence, or (7) past year Other Substance Dependence. More than one-

quarter (N=162) of adolescents met criteria for a past year substance use disorder in Wave 6.

All of the adolescent diagnostic information was obtained using the Diagnostic Interview Schedule for Children-Revised (DISC-R). The DISC-R is a highly regarded, structured interview intended for use with trained interviewers and it has been used extensively with children aged 11 years and older (Shaffer et al. 1993; Shaffer et al. 1988). In Wave 6, when the dependent diagnostic variables were assessed, adolescents had an average of 16.2 years old.

Control Variables

Age, gender, and per capita family income are used as control variables in this analysis. *Age* uses adolescent self-reported age from Wave 1, which ranged from 9-13 years but the overwhelming majority of adolescents were between the ages of 10-12 (there were a few adolescents who were older or younger than the target age during the first Wave due to interviewer error). *Gender* is coded such that females have a value of 1 (males have a value of 0). Per capita family yearly income, assessed at Wave 1 is also controlled for. The average per capita family income was \$5,690.

In addition, *prior internalizing, externalizing, and substance use disorder* diagnosis are controlled for. Again, the prior diagnostic information was obtained using the Diagnostic Interview Schedule for Children-Revised (DISC-R). In general, DISC-R research indicates that parent reports are the most reliable and that combined parent-child reports are more reliable than child reports alone (Schwab-Stone et al. 1996; Shaffer et al.

1996). Some suggest that parents and children each provide unique information regarding symptoms which are both important for meaningful diagnosis (Bird, Gould and Staghezza 1992). For these reasons, the current study relies on combined caretaker and child reports of prior disorder diagnosis (Wave 1) for analyses.

When available, prior (Wave 1) substance use disorders were assessed using the combined report (parents and adolescents) of lifetime criteria, but when lifetime was not available past year criteria was used. *Prior substance use disorder* diagnosis was constructed using the Wave 1 lifetime combined report—an adolescent had to meet diagnostic criteria for at least one disorder. *Prior externalizing disorder* diagnosis was constructed using Wave 1 combined report of lifetime Conduct Disorder, past year Attention Deficit Hyperactivity Disorder, and past year Oppositional Defiant Disorder. The DSM-IV does not diagnose lifetime ADHD or ODD. *Prior internalizing disorder* diagnosis was constructed using Wave 1 combined report past year diagnostic criteria for at least one of the same disorders used to construct the Wave 6 dependent variable. Again, the DSM-IV does not diagnose lifetime Generalized Anxiety Disorder, Mood Disorder, Major Depressive Disorder, or Dysthymic Disorder so past year diagnoses are utilized.

ANALYTIC APPROACH

In order to empirically test the nine hypotheses, the bivariate relationship between the key study variables (total number of caretaker separations, normative separations, non-normative separations, and internalizing, externalizing, and substance use disorder

diagnosis) was assessed first using cross tabulations. The study hypothesized that there would be a positive correlation between the total number of caretaker separations and all three disorder diagnoses, as well as with non-normative separations and all three disorder diagnoses. Next, multivariate statistics were examined using logistic regression to test these associations given the dichotomous nature of the outcome variables.

Two logistic regression models were estimated for each dependent variable (internalizing disorder diagnosis, externalizing disorder diagnosis, and substance use disorder diagnosis). The Model 1 equations specified disorder diagnosis as the dependent variable, total separations as the focal independent, in addition to controls for age, gender, income, and the prior disorder diagnosis (in Wave 1). Model 1 tested hypotheses 1a, 1b, and 1c. In Model 2, the logistic regression contained the normative and non-normative environments, with stable adolescents as the omitted reference category, and the same control variable set. Model 2 tested hypotheses 2a, 2b, 2c, 3a, 3b, and 3c.

Item missing data was handled using list-wise deletion in the regression analyses. This only includes participants in the regression if they are not missing on any of the items in the model. For each disorder diagnosis, Model 1 resulted in a sample size of 548 participants and Model 2 resulted in a sample size of 553 participants. This is a loss of 4.2% and 3.3% of the sample that participated in all six waves of the study (N=572).

The longitudinal research design of the current study allowed temporal order to be established. All of the independent variables occur earlier in time (birth - Wave 5) than the focal dependent variables (past year internalizing, externalizing, and substance use

disorders assessed in Wave 6). That is, the number and types of caretaker separations occur prior to and during the first five waves of data collection before the diagnosis of a disorder in Wave 6. This study design allows testing for empirical associations between caretaker separations and adolescent internalizing, externalizing, and substance use disorder diagnosis. Additionally, it allows for the elimination of plausible alternatives, like age, gender, income, and prior disorder diagnosis.

CHAPTER 4: RESULTS

Descriptive statistics are shown in Table 4.1. On average, participants were 11.06 years old and came from families with a per capita income of \$5,130 during the first wave of the study. Females (51%) represented a slightly higher percentage of the sample than males (49%). Between birth and age 16 years, the average participant experienced 1.18 separations from their parent or primary caretaker that lasted at least one month. During the study, exactly one-quarter (25%) of the sample had spent at least one month in the care of a relative or extended family member and 10% spent at least one month in a non-normative environment (such as boarding school, non-kin family foster care, or group homes).

Table 4.1. Descriptive Statistics

Variable	Mean	SD	Min	Max	N
Total # of Caretaker Separations	1.18	2.05	0.00	19.00	564
Normative Environments Only	0.25	0.43	0.00	1.00	572
At Least 1 Non-Normative Environment	0.10	0.30	0.00	1.00	572
Initial Age	11.06	0.82	9.00	13.00	569
Female	0.51	0.50	0.00	1.00	572
Per Capita Family Income	5.13	2.23	1.73	22.50	557
Prior Internalizing Disorder	0.04	0.19	0.00	1.00	570
Prior Externalizing Disorder	0.21	0.41	0.00	1.00	570
Prior Substance Use Disorder	0.03	0.17	0.00	1.00	570
Internalizing Disorder (W6)	0.05	0.22	0.00	1.00	570
Externalizing Disorder (W6)	0.11	0.31	0.00	1.00	570
Substance Use Disorder (W6)	0.28	0.45	0.00	1.00	570

Bivariate correlations are used to explore the hypotheses. These correlations are presented in Table 4.2. Interestingly, the total number of caretaker separations is not significantly correlated with meeting criteria for internalizing, externalizing, or substance

use disorders. This could indicate that caretaker separations must be looked at in more detail, as the simple number of separations is not correlated. When looking more specifically at the type of caretaker separations experienced, there is a clear pattern. Experiencing at least one non-normative environment is significantly correlated with externalizing disorders and substance use disorders. Normative environments, however, such as living with other relatives, are not significantly correlated with meeting criteria for any type of disorder. Next, the hypotheses are tested using logistic regression analysis because multivariate analyses provide more information about the relationship among many variables simultaneously.

Table 4.2. Bivariate Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 Externalizing Disorder (W6)	1.00											
2 Internalizing Disorder (W6)	.205 ***	1.00										
3 Substance Use Disorder (W6)	.373 ***	.145 **	1.00									
4 Normative Environments Only	.018	-.017	.053	1.00								
5 At Least 1 Non-Normative Environment	.088 *	-.022	.114 ***	-.191 ***	1.00							
6 Total # of Caretaker Separations	.053	-.028	.078	.495 ***	.327 ***	1.00						
7 Initial Age	.064	.024	.080	.010	.041	.084 *	1.00					
8 Female	-.069	.076	.041	-.034	.012	-.076	-.035	1.00				
9 Income	-.017	.006	-.053	.043	.005	.130 **	-.061	-.043	1.00			
10 Prior Internalizing Disorder	.016	-.046	.036	.011	.085 *	.040	.031	-.022	-.065	1.00		
11 Prior Externalizing Disorder	.040	-.016	.073	-.044	.147 ***	-.003	.108 **	-.087 *	-.021	.167 ***	1.00	
12 Prior Substance Use Disorder	.037	-.040	.096 *	.018	.148 ***	.030	.166 ***	-.013	-.036	.125 **	.267 ***	1.00

***Correlation is significant at the .001 level (2-tailed). **Correlation is significant at the .01 level (2-tailed). *Correlation is significant at the .05 level (2-tailed).

The first three hypotheses (1a, 1b, and 1c) focus on the relationship between the total number of caretaker separations (lasting one month or longer), regardless of the type of separation, and disorder diagnoses. Three separate logistic regressions were run to test these three hypotheses (Table 4.3). In each regression, the predictor variables were the total number of caretaker separations the youth had experienced, their initial age, per capita family income, and gender. Each of the three regressions had a different

dependent variable and a predictor variable of prior diagnosis of the corresponding disorder (e.g., the first logistic regression contains the number of caretaker separations, age, income, gender, and prior internalizing disorder diagnosis as the predictor variables and later internalizing disorder diagnosis as the dependent variable).

Table 4.3 shows the logistic regression coefficients for internalizing, externalizing, and substance use disorder diagnosis. There was no support indicating that the total number of caretaker separations is significantly associated with either internalizing (Hypothesis 1a) or externalizing disorders (Hypothesis 1b), but modest support indicating the number of separations was related to substance use disorders (Hypothesis 1c). The total number of caretaker separations was not statistically significant for either internalizing or externalizing disorder diagnosis. The number of caretaker separations, however, was a marginally significant predictor of later substance use disorder diagnosis. Controlling for initial age, gender, family income, and prior substance use disorder diagnosis, each additional caretaker separation that an adolescent experienced increased the estimated odds of meeting criteria for a substance use disorder by 9% (OR = 1.09; $p = .055$).

Because caretaker separations may affect boys and girls differently, the interaction effects of gender and the total number of separations were tested. These effects were non-significant for internalizing, externalizing, and substance use disorders, so the results are not presented here. These tests of interactions indicate that the effect of caretaker separations on meeting criteria for mental disorders does not differ for boys and girls.

Table 4.3. Model 1 Total # of Transitions Predicting Disorder Diagnosis (N=548)

Variables	Internalizing		Externalizing		Substance Use	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Initial Age	0.16	1.18	0.21	1.23	0.11	1.13
	[.24]		[.17]		[.12]	
Female	0.87	2.39 *	-0.33	0.72	0.26	1.30
	[.43]		[.28]		[.19]	
Family Income	0.05	1.05	-0.05	0.95	-0.06	0.94
	[.09]		[.07]		[.05]	
Prior Disorder Diagnosis	a	a	0.02	1.02	1.08	2.94 *
	a		[.34]		[.53]	
Total # of Separations	-0.08	0.93	0.07	1.07	0.86	1.09 †
	[.12]		[.06]		[.05]	
Intercept		-5.47 †		-4.11 *		-2.08
Nagelkerke R ²		0.03		0.02		0.03
Cox & Snell R ²		0.01		0.01		0.02

***P<.001 **P<.01 *P<.05 †P<.10

^aNote: Prior Internalizing Disorder Diagnosis was not included b/c there were no overlapping cases.

The last six hypotheses (2a, 2b, 2c, 3a, 3b, and 3c) focus on the relationship between the specific new environments that follow caretaker separations and disorder diagnoses. Three separate logistic regressions were used to test these six hypotheses (Table 4.4). In each regression, the predictor variables were experiencing normative environment every time they separated from a caretaker, experiencing at least one non-normative environment post-separation, the adolescent's initial age, per capita family income, and gender. Like Model 1, each of the three regressions had a different dependent variable and a predictor variable of prior diagnosis of the corresponding disorder (e.g., Wave 6 internalizing disorder was regressed on the number of caretaker separations, age, income, gender, and prior internalizing disorder diagnosis).

Hypotheses 2a, 2b, and 2c posited that experiencing one or more caretaker separations and always moved into a normative environment would not be significantly

associated with higher risk of meeting internalizing, externalizing, or substance use disorder criteria. Hypotheses 2a and 2b were fully supported. Compared to stable adolescents, always separating to a normative environment was not significantly associated with meeting later internalizing or externalizing disorder criteria after accounting for initial age, gender, family income, and prior disorder diagnosis. Hypothesis 2c, however, was rejected. Experiencing separations that always resulted in moves to normative environments was marginally associated ($p=.073$) with increased odds (OR = 1.49) of meeting substance use disorder criteria at Wave 6, net of the effects of other variables.

Hypotheses 3a, 3b, and 3c, on the other hand, posited that always moving into a normative environment post-separation would not be significantly associated with higher odds of later diagnosis of internalizing, externalizing, and substance use disorders. Hypothesis 3b and Hypothesis 3c were fully supported (Table 4.4) by the analyses. For adolescents who experienced at least one non-normative environment, the odds of meeting criteria for an externalizing disorder at Wave 6 were 2.4 times higher than for adolescents who never separated from their caretaker when holding other variables constant ($p<.05$). Similarly, the odds of meeting criteria for a substance use disorder at Wave 6 were 2.35 times higher for adolescents who separated into a non-normative environment than for stable adolescents, controlling for initial age, gender, income, and prior substance use disorders ($p<.01$). There was no significant association between non-normative environments and internalizing disorders, which means that Hypothesis 3a was not supported by the analysis.

Again, the interaction effects of gender and the type of separation were tested because caretaker separations and the environments that result could affect boys and girls differently. The effects of moving into a normative environment and the effects of moving into a non-normative environment on internalizing, externalizing, and substance use disorders were non-significant. This indicates that the effects of caretaker separations, whether into a normative or non-normative environment, on mental disorders do not differ for boys and girls.

Table 4.4. Model 2 Type of New Environment Predicting Disorder Diagnosis (N=553)

Variables	Internalizing		Externalizing		Substance Use	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Initial Age	0.15 [.24]	1.16	0.23 [.17]	1.26	0.14 [.12]	1.15
Female	0.76 [.42]	2.14 †	-0.43 [.28]	0.65	0.21 [.19]	1.24
Family Income	0.03 [.09]	1.03	-0.03 [.06]	0.97	-0.05 [.05]	0.95
Prior Disorder Diagnosis	a a	a	-0.06 [.34]	0.94	0.83 [.54]	2.28
Normative Environments	-0.24 [.48]	0.79	0.16 [.33]	1.17	0.40 [.22]	1.49 †
At least 1 Non-Normative Environment	-0.46 [.76]	0.63	0.88 [.39]	2.40 *	0.85 [.30]	2.35 **
Intercept		-5.08 †		-4.49 *		-2.50 †
Nagelkerke R ²		0.02		0.03		0.05
Cox & Snell R ²		0.01		0.02		0.03

***P<.001 **P<.01 *P<.05 †P<.10

^aNote: Prior Internalizing Disorder Diagnosis was not included b/c there were no overlapping cases.

^bNote: Stable Adolescents are the omitted category.

Table 4.5. Summary of Hypotheses

1a The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later meeting diagnostic criteria for an internalizing disorder.	<i>Rejected</i>
1b The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later meeting diagnostic criteria for an externalizing disorder.	<i>Rejected</i>
1c The total number of times an adolescent is separated from their primary caretaker for one month or longer between birth and age 15 years will be significantly and positively associated with the odds of later meeting diagnostic criteria for a substance use disorder.	<i>Partially Supported</i>
2a Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria for an internalizing disorder.	<i>Supported</i>
2b Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria for an externalizing disorder.	<i>Supported</i>
2c Among adolescents who experienced one or more caretaker separation and always moved into a normative environment, there will be no significant association with the odds of later meeting criteria for a substance use disorder.	<i>Partially Supported</i>
3a Among adolescents who experienced one or more caretaker separation that resulted in a move to at least one nonnormative environment, there will be a significant and positive association with the odds of later meeting criteria for an internalizing disorder.	<i>Rejected</i>
3b Among adolescents who experienced one or more caretaker separation that resulted in a move to at least one nonnormative environment, there will be a significant and positive association with the odds of later meeting criteria for an externalizing disorder.	<i>Supported</i>
3c Among adolescents who experienced one or more caretaker separation that resulted in a move to at least one nonnormative environment, there will be a significant and positive association with the odds of later meeting criteria for a substance use disorder.	<i>Supported</i>

CHAPTER 5: DISCUSSION & CONCLUSION

Using basic components of attachment theory, family stress theory, and the instability hypothesis, nine hypotheses were developed and tested concerning caretaker separations experienced by Indigenous adolescents and later meeting criteria for internalizing, externalizing, and substance use disorders. The first three hypotheses examined the relationship between the number of caretaker separations, a measurement of family instability, and later meeting criteria for internalizing, externalizing, or substance use disorders among Indigenous adolescents. The number of caretaker separations was thought to be positively associated with meeting criteria for all three disorders because these separations are considered stressful and their effect cumulative. Family instability did not significantly predict adolescent internalizing or externalizing disorder diagnosis and only achieved marginal significance when predicting substance use disorder diagnosis. Although these findings do not support the first three hypotheses and are incongruent with prior studies conducted on the general population (Capaldi and Patterson 1991; Cavanagh and Huston 2006; Hoffman, Cerbone and Su 2000), they are not altogether surprising. A handful of studies have found that family instability doesn't significantly affect African Americans (Fomby and Cherlin 2007; Fomby et al. 2010) or Mexican Americans (Fomby et al. 2010) and these researchers speculated that adolescents in these cultures benefit from additional social support provided by extended family relationships. The other six hypotheses concern one aspect that could be indicative of social support provided by extended family—living with other relatives after a caretaker separation.

The final six hypotheses accounted for the type of environment that an adolescent moved into after experiencing a separation from their primary caretaker. These new environments were classified as either normative (moving in with a relative) or non-normative (moving into non-kin foster care, institutional settings, or with a non-relative). Because extended family relationships are particularly close-knit and important in most Indigenous cultures, it was hypothesized that experiencing one or more caretaker separations and then subsequently moving in with family would not be significantly associated with higher risk of an internalizing (Hypothesis 2a), externalizing (Hypothesis 2b), or substance use (Hypothesis 2c) disorder diagnosis. Using the same logic, it was predicted that the lack of social support present in non-normative environments like non-kin family foster care, institutional settings, or non-relative care would contribute to significantly higher odds of later meeting diagnostic criteria for an internalizing (Hypothesis 3a), externalizing (Hypothesis 3b), and substance use disorder (Hypothesis 3c). For the most part, the results were consistent with my hypotheses and they speak to the importance of examining what kind of living situation follows a caretaker separation.

The results provide support for the idea that social support provided by extended family members could protect Indigenous adolescents against the stress of caretaker separations because moving into a normative environment after each separation was not significantly related to higher odds of meeting criteria for an internalizing, externalizing, or substance use disorder. However, it should be noted that the association between moving into a family member's care and the odds of meeting criteria for a substance use disorder was approaching significance.

The central idea was that leaving the family umbrella, even one time, was a factor that would be harmful to adolescents who were attempting to deal with separation from their primary caretaker. It seems that this could indeed be the case, but may be domain specific. Adolescents who experienced at least one move into a non-normative environment were more than doubly likely to meet criteria for an externalizing or substance use disorder than adolescents who experienced a stable living situation throughout the study. Both the non-normative environments themselves as well as the co-residents in non-normative environments could be very unfamiliar to the adolescent, which has the potential to be very stressful and socially isolating. This increased stress and social isolation could contribute to the increased behavioral problems. These results are consistent with past research concerning non-kin family foster care and group care settings (Duerr-Berrick 1997; Hodges et al. 1999; Metzger 2008; Vaughn et al. 2007).

As in any longitudinal research project, missing data is a limitation and it cannot be assumed that participants attrit completely at random nor that item-missing is completely at random. Therefore, although the attrition analysis indicated no significant differences on the study variables, results should still be interpreted with caution. It is also important to understand that while the current sample is generalizable to one of the most populous Indigenous cultures in the northern Midwestern United States and Canada, it certainly cannot be generalized to all Indigenous cultures in the United States or Canada. This study is further limited by the fact that the data does not contain specific reasons for the caretaker separations. That is, it is unknown whether the adolescent moved away from their primary caretaker because of parental divorce or separation, the

intervention of Child Protective Services, or because their caretaker moved for employment or treatment, or whether the child was separated because of his or her own request or own behavior. It seems logical to expect that the reason for the caretaker separation could certainly be associated with emotional and behavioral problems for the adolescent, so future research that includes this mechanism is needed. That is, it could be more traumatic for the adolescent to be forcefully removed from their parent by CPS because of neglect or abuse than for the adolescent to experience a caretaker separation due to a divorce. Another limitation is that the study only has information about where adolescents lived when they separated from their caretaker during the first six years of the study with which to measure the type of new environments and there is no information about new environments following separations that may have occurred prior to the study.

Despite these limitations, this research provides important insights into how caretaker separations affect internalizing, externalizing, and substance use disorders among Indigenous adolescents. It tests both the instability hypothesis in a manner that is consistent with prior research and examines the effects of new environments that are a consequence of caretaker separations. Using a sum of the number of lifetime caretaker separations (like Adam and Chase-Lansdale 2002) that lasted at least one month as a measure of instability, the current study provides little evidence to support the instability hypothesis among Indigenous families. However, it is clear that the type of new environment a child or adolescent moves into after separating from his or her caretaker is a factor that produces variability in adolescent's adjustment.

Results show that non-normative environments like non-kin family foster care, institutional settings (like group homes, boarding schools, and treatment programs), or non-relative settings put adolescents at the greatest risk of meeting criteria for externalizing and substance use disorders. Moving into the care of extended family members, on the other hand, seems to be a protective factor for Indigenous adolescents who have experienced a caretaker separation. Traditionally and contemporarily, extended family relationships (especially those between grandparents and grandchildren) have been extraordinarily important in many Indigenous cultures. It could be that although experiencing one or more attachment disruptions with a primary caretaker are stressful, moving into the care of a family member that the adolescent has presumably had a close relationship with for most of his or her life provides a great deal of social support that helps him or her to cope with this stress. In addition to providing social support, living with relatives could mean (1) a familiar routine, (2) a set of morals, values, and expectations that are similar to what the adolescent is accustomed to, (3) and a continuous feeling of belonging to their family. All of these factors would be beneficial to an adolescent who, for some reason, is separated from their primary caretaker. Familiar routines, values, social support, and a sense of belonging could all help absorb the shock of separation and minimize the amount of change that youth need to adjust to. This protection that Indigenous families provide to their children may partially explain why Indigenous adolescents are not as affected by family instability compared with the general population (Ackerman et al. 1999; Adam and Chase-Lansdale 2002; Kobak et al. 2001; Wu and Martinson 1993; Wu 1996). This has clear practical implications—child

welfare agencies ought to consider the beneficial effects of placement with familiar extended family members and give priority to kinship care over non-kin family foster care or group home placements.

The study contributes to the currently limited understanding of the effects of family change among Indigenous families. It also identifies one factor that produces variability in an Indigenous adolescent's adjustment after experiencing separations from his or her primary caretakers—the type of post-separation living situation. This project indicates that adolescents moving into the care of a relative are better off than adolescents who move into non-kin family foster care, boarding schools, group homes, treatment centers, or into a non-relative's care in the realms of internalizing, externalizing, and substance use problems. It seems that moving into the care of a family member provides consistent social support and helps adolescents to cope with the stress of separating from their primary caretaker. In these instances, the environments that adolescents move into may be getting better rather than worse. An additional possibility is that Indigenous cultures define family much differently than the majority culture does, and that these normative moves in with family may not be at all jarring, stressful, or different especially if Indigenous cultures define family and raising children as a communal task taken on by most blood relatives. More research is needed though, in order to understand factors that may contribute to non-normative placement following caretaker separations.

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