

THE RELATIONSHIP BETWEEN CHILDREN'S ADOPTION STATUS AND  
BEHAVIORAL OUTCOMES: MEDIATING EFFECT OF PARENTING PRACTICES

by

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## Abstract

The purpose of this study is to examine the relationship between adoption statuses on multiple measures of child behavioral outcomes, mediated by parenting practices. Data from the first wave of National Longitudinal Survey of Children and Youth (NLSCY) was used to look at 145 adopted children (51 females and 77 males) between 4-11 years of age. Investment theory and sociobiological theory is used as the framework and suggested that adoptive parents invest less in parenting than genetically related parents, resulting in different child behavior outcomes. The data was examined to observe (1) if there is a difference in parenting practices between adoptive parents and biological parents; (2) if child outcomes are related to parenting practices; and (3) if child outcomes differ for adopted children versus biological children when parenting practices are controlled. The results that were found fail to support the hypotheses and instead lend some credibility to the view that intact adoptive parental practices and child behaviors do not differ from intact biological parental practices and child behavior. This research exposes myths regarding adoptive statuses for future adoptive parents and adopted children.

## Table of Contents

Abstract.....	ii
Table of Contents.....	iii
List of Tables.....	vi
<b>1 Introduction.....</b>	<b>1</b>
Review of Literature.....	3
Adoption and Parenting Practices.....	4
Parenting Practices and Child Behavior Outcomes.....	5
Adopted Children and Behavioral Outcomes.....	7
Child Behavioral Outcomes.....	8
Theoretical Framework.....	11
Investment Theory.....	11
Sociobiological Theory.....	13
Hypothesis.....	14
<b>2 Methods.....</b>	<b>17</b>
Description of Entire Sample.....	17
Description of Sub Sample.....	19
Biological Intact Families.....	19
Adoptive Intact Families.....	20
Measures.....	22
Dependent Variable – Child Outcome Measures.....	23
Independent Variable – Child’s Adoption Status.....	26
Mediating Variable – Parenting Practices.....	26

Control Variables.....	29
<b>3 Results and Conclusions.....</b>	<b>34</b>
Hypothesis Testing.....	34
Hypothesis 1.....	34
Hypothesis 2.....	36
Hypothesis 3.....	38
Post Hoc Analysis.....	39
Discussion.....	45
Limitations.....	50
Strengths.....	52
Future Research.....	52
Conclusions.....	54
References.....	58
Appendix A.....	67
Hyperactivity-Inattention Score (Age 4-11).....	67
Prosocial Behavior Score (Age 4-11 Years).....	67
Emotional Disorder – Anxiety Score (Age 4 – 11 Years).....	68
Conduct Disorder – Physical Aggression Score (Age 4 – 11 Years).....	68
Indirect Aggression Score (Age 4 – 11 Years).....	69
Property Offences Score (Age 4 – 11 Years).....	70
Appendix B.....	71
Positive Interaction Parenting (Age 2 – 11 Years).....	71
Hostile/Ineffective Parenting (Age 2 – 11 Years).....	71

Consistency in Parenting (Age 2 – 11 Years).....	72
Punitive/Aversive Parenting (Age 2 – 11 Years).....	72
Appendix C.....	74
Family Functioning Scale.....	74
Social Support Scale.....	74

## List of Tables

Table 1 Sample Description of Target Child and Household.....	31
Table 2 Analysis of Sub Sample for Dependent and Mediating Variables.....	32
Table 3 Descriptive Statistics for Sub Sample Variables.....	55

## **1 Introduction**

Adoption is a practice that is experienced by many children, parents, and families. It provides the opportunity for children to be a part of a family and parents to raise children that neither may have otherwise been able to experience. However, the question remains if adoptive parents provide the same quality of parenting for adopted children as they would for biological children and if possible differences in parenting would materialize in negative behavioral outcomes in an adopted child.

Child adoption is a practice that occurs commonly in many countries. Currently, census data in Canada does not allow for distinction between biological families, adoptive families, and step families. This is because respondents are instructed to declare their biological, adoptive, or step children as either “son” or “daughter” (Le Bourdais & LaPierre-Adamcyk, 2004). This complicates establishing exactly how many Canadian children are in fact adopted children and how many parents are adoptive parents.

The first ever census profile that included recognizing adopted children was done by the United States Census Bureau in 2000 and released in 2003. The purpose of including this information in the census was to improve the statistics kept on families and provide useful data to policymakers and agencies (Kreider, 2003). The census shows that 2.5% of children under 18, 1.6 million, were adopted children. The statistics also show that 92.5% of children live with birth parents. Eighty seven percent of adoptees less than 18 years of age were born in the United States, indicating the majority of adoptions are domestic adoptions. Of the families with adopted children, 82% had one adopted child, 15% had two adopted children, and 3% had three adopted children (Kreider, 2003).

Many different situations lead prospective adoptive parents to consider adoption. Adoption has been found to be prevalent for childless, non-contraceptively sterile, white women (Poston & Cullen, 1989). However, it is also common for infertile couples to choose adoption (Van Balen, Verdurmen, & Ketting, 1997; Larson, 1999; Daniluk & Hurtig-Mitchell, 2003). In addition, gay and lesbian individuals have recently more universally become adoptive parents because of their inability to conceive on their own (Kindle & Erich, 2005; Appell, 2003; Brooks & Goldberg, 2001; Sullivan & Baques, 1999). International adoptions are often chosen because parents can state their preference for an infant, have a confidential adoption, race/ethnic similarity, and experience shorter waits (Hollingsworth & Mae Ruffin, 2002). Many individuals have altruistic motives for choosing this route in adoption (Van Balen et al, 1997).

There are two significant, corresponding theories that have been used as frameworks to explain diverse areas of adoption. Parental investment theory is often examined when looking at adopted children in comparison to biological children. This theory suggests that parents are likely to put more investment into their biological children than into other children in the household including adopted children, step children, and other non-genetically related children (Becker, 1981). Sociobiological theory is also significant and looks at the concept of inclusive fitness. This term means that individuals will behave in ways that maximize their own or their relatives' reproductive success (Trivers, 1972; van den Berghe, 1979; Emlen, 1995; White & Klein, 2002). Investment theory and sociobiological theory are complementary to one another. This study will not test the theories, but rather use the theories as a framework for the research being conducted.



This thesis will specifically focus on the relatively unexplored area of adopted children's behavioral outcomes and adoptive parents' parenting practices in comparison to biological children, using the framework of investment and sociobiological theory. The investigation will study the adoption status of children and various behavioral outcomes, and if the relationship is mediated by adoptive parents' parenting behaviors.

### Review of Literature

There are many main themes that have been addressed in adoption literature in the past. These areas include differences in various types of adoptions such as open versus closed adoption procedures, homosexual versus heterosexual adoptions, and international versus domestic adoption (Hollingsworth, 2003; Hollingsworth & Mae Ruffin, 2002; Groza & Ryan, 2002; Levy-Shiff, 2001; Kindle & Erich, 2005; Appell, 2003; Brooks & Goldberg, 2001; Sullivan & Baques, 1999; Castagnini, 2005; Drasin, 1995). Also, issues surrounding adoptive parents have been studied including parenting stress (Deater-Deckard, Smith, Ivy, & Petril, 2005; Judge, 2003; McGlone, Santos, Kazama, Fong, & Mueller, 2002; Mainemer, Gilman, & Ames, 1998) and parental expectations (Santona & Zavattini, 2005; Waterman, 2001; Lvey-Shiff, Goldshmidt, & Har-Even, 1991). Finally, research has been conducted in areas surrounding childhood outcomes of attachment characteristics (Stams, Juffer, & van Ijzendoorn, 2002; Barth, Crea, John, Thoburn, & Quinton, 2005), identity issues for children and adolescents (Neil, 2000; Grotevant, 1997), emotional adjustment (Haugaard, 1998; Brown, 2001), and academic performance (van Ijzendoorn & Juffer, 2005). These past studies have played a significant role in shaping and developing new practices and policies in the field of adoption (Luckock &

Hart, 2005; Sullivan & Lathrop, 2004). The research also has been beneficial for all those working in the area of adoption as well as prospective adoptive families and adopted children.

There are main themes, however, that are not currently covered in existing adoption literature and need to be further examined. Specifically, very little examination has been conducted in child behavioral outcomes for adopted children and adoptive parenting practices. This is an area that would be of great benefit to the field of child adoption, perhaps shaping future policies and practices.

#### Adoption and Parenting Practices

Adoptive parents have been considered to be less confident and more anxious than biological parents, feel more anger and increased grief, and worry about their ability to bond with a child that is not theirs genetically. These emotions are thought to be attributed to the factors that led to their decision to adopt such as infertility, intrusive and expensive fertility treatments, and grief associated with giving up on having a biological child (Borders, Black, & Pasley, 1998). It has been suggested that adoptive parents with unresolved anger about their situation may project the anger onto their adopted child (Borders et al., 1998). Adoptive parents also have to work through the uncertainty of the adoption process and social reactions from others that may affect their psychological health. They are also continually challenged to help the child deal with his/her loss and adoption status at every stage of development. This may result in a constant reminder of the uniqueness and difference of their family (Borders et al., 1998).

However, only a few empirical studies have been conducted on these assumptions about adoptive parents. Recent, relevant studies on adoptive parenting offer conflicting

conclusions. Weiss (1984) found parent-child conflict was noted more frequently for adopted youths. Whereas Goldberg and Wolkind (1992) found adoptive parents were more over-involved and had higher expectations for child achievement, resulting in adjustment problems when the child let them down. Adoptive parents were found to employ inadequate or inconsistent parenting practices more often than biological parents (Goldberg & Wolkind, 1992). On the other hand, Goldombok, Cook, Bish, and Murray (1995) found mothers and fathers of adopted children showed higher amounts of positive interaction than biological parents. Therefore, a question still remains regarding the differences of quality in adoptive parenting.

#### Parenting Practices and Child Behavior Outcomes

The majority of behavioral problems experienced by children in childhood are divided into two areas. These behavioral problems are referred to as either internalizing or externalizing disorders. Internalizing disorders involve disturbances of affect (Miller, Jenkins, & Keating, 2002). They include problems such as personal anxiety and separation anxiety. In contrast, externalizing disorders typically involve negative behaviors that are problematic for the child and disturbing to others. These include problems such as conduct disorders, physical aggression, and hyperactivity (Miller et al., 2002). Externalizing and internalizing behavior problems in children have been previously researched for both biological and adopted children, indicating parental practices are associated with these behavior problems (Deater-Deckard, & Plomin, 1999; Peters, Atkins, & McKay, 1999; Juffer, Stams, & van Ijzendoorn, 2004; Knutson, DeGarmo, & Reid, 2004; O'Leary & Vidair, 2005; Fite, Colder, Lochman, & Wells, 2006).

The examination of parenting practices on child behavior has also been studied in depth for various types of children and different family formations. The majority of literature indicates that child behavior is affected by parental practices. Specifically, negative parenting practices result in negative child behavior (Knutson et al., 2004; O'Leary & Vidair, 2005; Fite et al., 2006).

O'Leary & Vidair (2005) found parenting practices to act as a mediator for child behavioral problems. In addition, negative parenting practices explained the increase in externalized and internalized behavior problems in both boys and girls.

Fite et al. (2006) found that negative child behavior predicted poor parental monitoring and inconsistent discipline, especially for boys. Children have also been found to more likely have behavior problems or poor cognitive development if their parents are unsupportive, unresponsive, or lacking warmth (Miller et al., 2002).

Knutson et al. (2004) found punitive and neglectful parenting to result in more aggressive and antisocial behavior in children. Hostility and power assertion in the parent-child relationship have consistently been identified as an important predictor of psychopathology in childhood, particularly the onset of externalizing behavior disorders (Miller et al., 2002). Frequent and severe physical punishment in the home is associated with more aggression towards peers in school, and that children who had been subjected to high levels of physical punishment were more likely to attribute hostile intent to other children's neutral actions (Miller et al., 2002). A lack of positive interactions and affection in parent-child relationships is also associated with childhood behavior problems (Miller et al., 2002).

Research has consistently shown that children do better when parents monitor their child's behavior, are responsive to their needs, and encourage independence with a democratic approach. This combination of monitoring, responsiveness, and encouragement was conceptualized by Baumrind (1995) as an authoritative style of parenting. However, it has been observed that the effects of parenting techniques on child outcomes vary depending on the child's age (Chao & Willms, 2002).

### Adopted Children and Behavioral Outcomes

There are also few empirical studies that have been conducted on the behavioral outcomes of adopted children in comparison to biological children. The research that has been conducted in this area has shown inconsistent results. Some researchers have found that adopted children are represented in higher numbers in clinical settings (Goldberg & Wolkind, 1992), while other researchers indicate that child outcomes between the two groups to be equivalent (Brand & Brinich, 1999). Although results are inconclusive, there is agreement that adopted children have an increased risk for the development of behavioral problems.

Past research that has found more negative outcomes for adopted children has established that these outcomes consisted of many different types of behavior. Peters et al. (1999) found that adult adoptees have been found to be more likely to be arrested, convicted, and incarcerated than non-adoptees. Juffer et al. (2004) found that adopted children have increased externalized behavior problems compared to non-adopted children. Stams, Juffer, Rispen, and Hoksbergen (2000) found that adopted boys were slightly more likely to experience behavioral problems than adopted girls. Deater-Deckard and Plomin (1999) found similar results indicating adopted boys were the most

likely to have high levels of aggression and delinquency compared with both adopted girls and non-adopted children. Smith, Howard, and Monroe (2000) found that special needs adopted children are especially vulnerable to behavioral difficulties. The most common behavior problem among these children is conduct disorders perhaps extending from internal negative feelings such as anger, powerlessness, low self-esteem, fear, and anxiety.

Past research has examined several issues as possibilities for the differences in child behavior between adopted and biological children. It is important that research comparing adoptive with biological families, compare families that are of similar status as to the number of parents (intact families). In previous research, this has not always been the case. In addition, the current literature has not addressed the parenting practices of adoptive and biological parents that could be a possible influence on the reported differences between adopted and biological children's behavior.

### Child Behavioral Outcomes

It is clear from previous research that behavioral outcomes in children are influenced by parenting practices and adoption status. However, it is important to recognize that other factors play a role in determining behavioral characteristics.

Aside from parenting practices, parental influence on child outcomes should also include socioeconomic factors. Parental education level, occupation prestige, and the total income of the household play a determining role in child outcomes. The most persistent and pervasive findings from the majority of research on human development is that childhood health and well-being are directly related to these socioeconomic factors

(Chao & Willms, 2002). A child's individual choices depend on the norms of their immediate community and the social support that is available to them (Chao & Willms, 2002). Lower parental education levels and low income can result in more negative outcomes for children (Yeung, Linver, & Brooks-Gunn, 2004). In previous research it has been found that maternal education is significant, indicating that for each additional year of maternal education, the odds of a child having a behavior problem decreases by approximately 7% (Chao & Willms, 2002). Low income is important not only because parents have fewer material resources to invest in their children, but also because poverty contributes to parents' ability to concentrate on their parenting skills.

Other family characteristics also have potential to contribute to childhood behaviors. The functioning level of the family often results with children in poor functioning households having more difficulties than in households that function adequately (Knutson et al., 2004). The concept of family functioning pertains to the viability of the family as a system and not just to the relationship between parents and other children. It refers to the way in which families work together on tasks that are necessary for the family unit to survive (Racine & Boyle, 2002). Previous research from Canadian data has emphasized the adverse effects family dysfunction can have on children's behavior (Racine & Boyle, 2002; Knutson et al., 2004). Research has taken the perspective that the family is an interactional system whose structure, organization, and transactional patterns determine the behavior of the members that belong to it. Canadian children living in dysfunctional families are approximately 40% more likely to display a behavior problem compared to those living in families with an average level of

functioning. The relationship between family functioning and behavior problems is particularly strong for childhood aggression (Racine & Boyle, 2002).

The amount of social support that a family is able to make contact with also influences parenting techniques and child outcomes. Families that have large support networks are more likely to have well adjusted children than families with little or no support available to them from others (Knutson et al., 2004). As noted previously, children's decision making skills are often dependent on the norms of their community and surrounding social support (Chao & Willms, 2002).

Often other siblings in the household have an influence on a child's behavior. According to Becker (1981), the amount of time, energy, and resources a parent invests in their child will be divided among all the children in the home. Therefore, the more siblings a child shares the house with, the less parental attention they are receiving, which may result in more negative behaviors. However, other empirical studies have found that children are less likely to have behavior problems if they have more siblings in the household (Miller et al., 2002). Overall, the inconclusive results show there is an association present between number of siblings and child behavior.

The gender of the child will also determine a child's behavioral outcome. Being male or female influences how children are socialized and their resulting behaviors (Haveman & Wolfe, 1994). Males are found to be more physically aggressive than females, while females are often more indirectly aggressive than males (Fite et al., 2006). Therefore, it is clear that males and females will externalize or internalize different behaviors according to their gender.



## Theoretical Framework

### Investment Theory

Parental investment theory is commonly examined when comparing adopted children to biological children. This theory suggests that parents are likely to put more investment into their biological children than into other children in the household including adopted children, step children, and other non-genetically related children (Becker, 1981). Genetic similarity between the parents and children is viewed as a benefit for parents and that increases the demand for parents to bear their own children. Biological children are also preferred because of the value of information the parents have about their children. This information known about the children is more readily available such as knowledge about intrinsic characteristics, family health history, and appearance of the children. This is because parents and biological children have half their genes in common and the child inherits many traits and qualities from the parents (Becker, 1981).

Investment theory presumes that children receive an endowment from their parents (Becker, 1981). This endowment includes biological attributes coded in DNA, cultural attributes determined by their parents' norms, values, and preferences, as well as income, wealth, and access to resources (Chao & Willms, 2002). Children from more wealthy families are likely to have better than average endowments and children from lower wealth families are likely to have below average endowments (Becker & Tomes, 1985). Therefore, parents pass along biological, cultural, and material attributes to their children and this continues in each subsequent generation.

As indicated by the economic approach to investment theory, children are treated as durable consumer goods (Becker, 1981). This specifies that parents invest time and money in the human capital of their children, primarily through expenditures on education and healthcare. Although the emphasis of investment theory has been on the transmission of earnings and wealth from one generation to the next, the idea that children's social, emotional, and intellectual development depends on parents' investments is also significant (Chao & Willms, 2002).

Trivers's (1972) parental investment theory emphasizes the importance of internal fertilization in the female for conception for the male to be more investing in the child. It is also predicted that women will maximize their investment in their children if they have carried them through pregnancy and engaged in breastfeeding with the child (Pratto & Hegarty, 2000). These experiences solidify that the child is their own genetically and results in higher investment in the offspring produced from this situation.

According to previous research on investment theory, parents may be more likely to invest in either male or female children. The results are inconclusive and depend on specific family and society characteristics if it will be males or females that are favored (Smith, Kish, & Crawford, 1987). On one hand, males are biologically capable to reproduce in abundance. Therefore, parents will often invest more in male children compared to female children because of the opportunity to pass on genes (Becker, 1981). Females are often more invested in because the certainty of the offspring's genetic make-up is guaranteed to be their own when they reproduce (Smith et al., 1987). A parent will ultimately choose to invest in the child or children that are most likely to enhance the

parents' well-being over time. The child or children that are most invested in will receive more of the parents' resources including money, time, and energy (Fox & Bruce, 2001).

The level of the quality of children is directly related to the amount spent on them. Therefore, investment theory states that there is a negative correlation between quantity and quality of children per family (Becker, 1981). An increase in parental quality is more expensive if there are more children because the increase has to apply to more units. Also, an increase in parental quantity is more expensive if the children are of higher quality (Becker, 1981).

Investment theory has been applied to contemporary families and it has been shown that positive parental investment was found to be allocated in favor of biological children and parents were found to have consistently more positive and less volatile feeling about their genetic children than about children of no genetic relation (Miller, 2005). DeBruine (2004) found that parents are more likely to invest in their offspring if there is a physical resemblance. In accordance with investment theory, this means that parents will increase their investment as both appearance and genetic similarities increase.

### Sociobiological Theory

A key concept used in sociobiological theory is inclusive fitness (van den Berghe, 1979). Every individual is biologically selected to behave to maximize their own inclusive fitness and reproductivity. Individuals will also behave in ways that capitalize on their relatives' reproductive success both in the present and the future. It is not simply an individual's own reproductive success that is important, but the passing on of its genes

either directly or indirectly through the reproduction of an individual that shares its genes (Trivers, 1972, van den Berghe, 1979, Emlen, 1995; White & Klein, 2002).

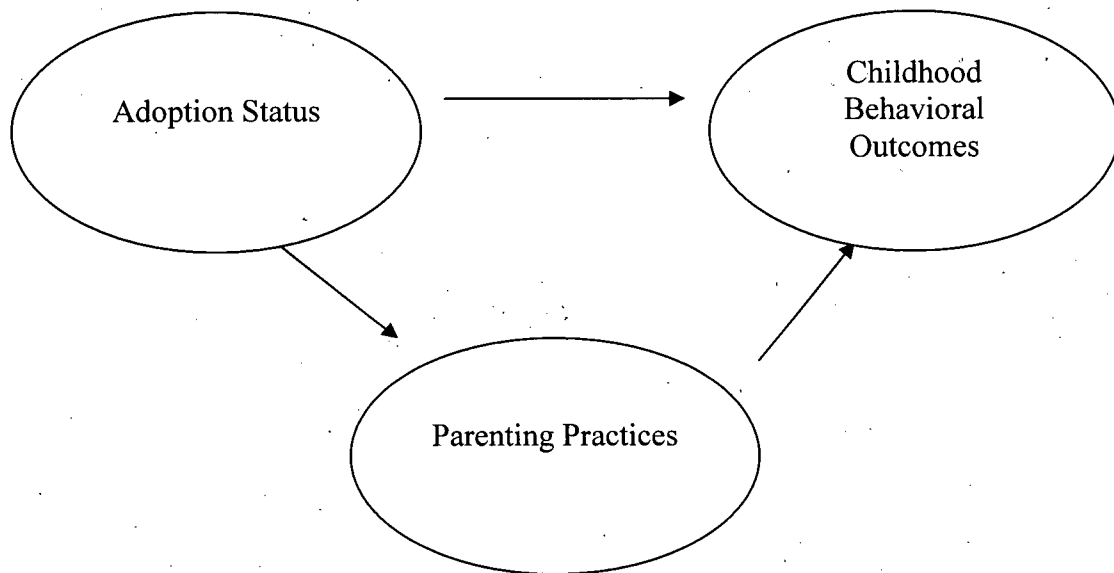
Sociobiological model emphasizes that those behavioral tendencies that maximize reproductive success and inclusive fitness become characteristic of the population and is passed on to successive generations (Malkin & Lamb, 1994).

Theoretically, parents should be inclined to invest more resources in an offspring or full sibling than in a cousin or half-sibling, and more in any of these than a step child or other genetically unrelated individual (Malkin & Lamb, 1994). This proposes that the more genetically alike individuals are, the more they will invest resources in these individuals. This would indicate that parents will invest more resources in biological children than in adopted children.

In contemporary family research, this theory has been used to frame research surrounding abuse and neglect of children. It was found to be more common for children living with non-biological or step parents, than with biological parents, to be abused and neglected. The degree of severity of the abuse is dependent on the relationship to the child as well. Non-biological parents are more likely to engage in more serious types of abuse than biological parents (Malkin & Lamb, 1994).

### Hypothesis

The specific research question that will be examined in this thesis is: Are parenting practices acting as a mediator in the relationship between adoption status and childhood behavioral outcomes?



H1. Adopted children will experience different parenting practices than biological children

- a. Adopted children will experience increased hostile/ineffective parenting
- b. Adopted children will experience increased inconsistency in parenting
- c. Adopted children will experience increased punitive parenting
- d. Adopted children will experience decreased positive interactions with parents

H2. Different parenting practices are associated with negative child behavioral outcomes

- a. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased hyperactivity/inattention behavior
- b. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with decreased prosocial behavior

c. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased emotional-anxiety disorder behavior

d. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased aggression

e. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased indirect aggression

f. Increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased property offences

H3. Adopted children will have behavioral outcomes equal to biological children when controlling for parenting practices

## 2 Methods

### Methods

The data being used for this analysis is drawn from cycle one of the National Longitudinal Survey of Children and Youth (NLSCY). This data was collected in 1994-1995 in Canada. The NLSCY target population for the data collection consisted of Canadian children who live in private households. The NLSCY data used a multi-stage cluster sampling design to originally collect the data (Statistics Canada and Human Resources Development Canada, 1995).

The sub sample being used in the study is drawn from the entire sample. Thus, the entire sample composes the population for this analysis. The weighted sample is representative of Canada, while the unweighted sample has sampling design effects that make it less representative. Weighted data, however, provides biased variance estimates when using analysis of variance or regression. Therefore, sample weights are not being used because of their effect on such variance estimates (Winship & Radbill, 1994). All reports that follow are on the unweighted data and should not be taken as representative of the Canadian population as a whole.

### Description of Entire Sample

The entire population in the NLSCY consists of 22 831 individuals. The "Person Most Knowledgeable" (PMK) about the child responded to questions regarding the target child. The PMK are 91.8% female and 8.2% male (See Table 1). Education levels of the PMK for the NLSCY vary and indicate that 17.3% have less than secondary school, 19.7% have graduated from high school, 28.1% have beyond high school, and 34.8%

have a college or university degree (See Table 1). Occupations of the PMK for the NLSCY indicate that 0.2% are self employed professionals, 8.3% are employed professionals, 2.4% are high-level management, 11.5% are semi-professionals, 1.8% are technicians, 6.8% are middle management, 2.5% are supervisors, 0.9% are foreman/forewoman, 13.1% are skilled clerical/sales/service, 2.5% are skilled crafts and trade farmers, 1.3% are farmers, 19.1% are semi-skilled clerical/sales, 6.7% are unskilled clerical/sales/service, 13.5% are semi-skilled manual, 7.9% are unskilled clerical/sales/services, and 1.6% are farm laborers (See Table 1). Total household income for the households in the NLSCY sample indicate 0.7% have less than 10 000, 3.2% have 10 000 to 14 999, 4.6% have 15 000 to 19 999, 12.5% have 20 000 to 29 999, 16.3% have 30 000 to 39 999, 17.0% have 40 000 to 49 999, 14.4% have 50 000 to 59 999, 17.9% have 60 000 to 79 999, and 13.4% have 80 000 or more (See Table 1).

The target children have a mean age of 5.16, with a standard deviation of 0.023. Of all the children in the sample, 49.1% are female and 50.9% are male (See Table 1). These children are living in various family structures.

The NLSCY participants have diverse numbers of children aged 0 to 17 living in the same household. One child is in 18.7% of the households, 45.4% contain two children, 24.6% contain three children, and 11.3% contain four children (See Table 1).

Family functioning scores for the NLSCY participants have a mean score of 8.19, with a standard deviation of 0.34, on a scale of 0 to 35. Social support scores for the entire sample population show a mean score of 14.48, with a standard deviation of 0.019, on a scale of 0 to 18 (See Table 1).



### Description of Sub Sample

The specific sub sample that will be explored is the 4 to 11 year old children, living with two adoptive parents or two biological parents, taken from the entire sample. This sample includes 145 children living in intact adoptive families and 10 891 children living in intact biological families, with a total of 11 036 target children available for analysis. In this sample, there is no background information available on the child, birth parents, or adoptive families. Therefore, previous life circumstances that could contribute to behavioral outcomes for the children are unknown.

This specific sample is being chosen to eliminate comparison issues with other family formations. The biological and adopted families are both intact. Other children that are living with only one adoptive parent may be doing so because they experienced a parental divorce or live with a lone parent. Therefore, these children may exhibit characteristics resulting from experiencing a divorce or living in an alternate family structure that affected their behaviors. The sub sample of children living with two biological parents and two adoptive parents have most likely grown up only in a two parent home and are more comparable than other family structures to study. Thus, the other family structures will be rejected from the analysis.

### Biological Intact Families

The children living with two biological parents have a mean age of 7.35, with a standard deviation of 0.022 (See Table 1). The sample of biological children consists of 49.1% females and 50.9% males (See Table 1). The children's households contains 8% that have no other child in the household, 48.1% with 1 other child, 30.5% with 2 other

children, and 13.4% with 3 other children living in the same household (See Table 1).

The specific sample focuses on the 10 891 PMK from two biological parent households.

The sub sample PMK consists of 91.5% females and 8.5% males (See Table 1).

For the biological parents' sample, 15.5% of individuals have less than secondary, 21.9% have graduated secondary school, 27.2% have received beyond high school, and 35.4% have received a college or university degree (See Table 1).

Biological PMK occupations consist of 0.3% self employed professionals, 8.4% employed professionals, 2.6% high-level management, 11.8% semi-professionals, 1.6% technicians, 6.5% middle management, 2.9% supervisors, 1.1% foreman/forewoman, 13.5% skilled clerical/sales/service, 2.4% skilled crafts and trade farmers, 1.7% farmers, 17.5% semi-skilled clerical/sales, 6.8% semi skilled manual, 13.8% unskilled clerical/sales/service, 7.2% unskilled manual, and 1.9% farm laborers (See Table 1).

The biological households consist of 0.6% with less than 10 000, 2.2% with 10 000 to 14 999, 3.9% with 15 000 to 19 999, 11.4% with 20 000 to 29 999, 16.5% with 30 000 to 39 999, 17.4% with 40 000 to 49 999, 14.8% with 50 000 to 59 999, 18.8% with 60 000 to 79 999, and 14.3% with 80 000 or more (See Table 1).

#### Adoptive Intact Families

The children living with two adoptive parents have a mean age of 7.99, with a standard deviation of 0.181 (See Table 1). The sample of adopted children contain 24.8% of households with no other children, 51.0% with 1 other child, 16.6% with 2 other children, and 7.6% with 3 other children living in the same residence (See Table 1).

The 145 PMK from two adoptive parent households consist of 86.9% females and 13.1% males (See Table 1). For the adoptive parents' sample, 15.9% of PMK have less than secondary school, 11.0% have graduated from secondary school, 29.7% have beyond high school, and 43.4% received a college or university degree (See Table 1).

Adoptive PMK occupations consist of 14.0% employed professional, 2.8% high-level management, 19.6% semi-professionals, 8.4% middle management, 4.7% supervisors, 0.9% foreman/forewoman, 10.3% skilled clerical/sales/service, 0.9% skilled crafts and trade, 1.9% farmers, 12.1% semi-skilled clerical/sales, 7.5% semi-skilled manual, 12.1% unskilled clerical/sales/service, 3.7% unskilled manual, and 0.9% farm laborers (See Table 1).

The adoptive households consist of 2.8% with 10 000 to 14 999, 2.1% with 15 000 to 19 999, 11.8% with 20 000 to 29 999, 13.9% with 30 000 to 39 000, 10.9% with 40 000 to 49 999, 10.4% with 50 000 to 59 999, 22.9% with 60 000 to 79 999, and 22.9% with 80 000 or more (See Table 1).

Family functioning scores were calculated for the biological and adoptive families. The biological family functioning score have a mean score of 7.83, with a standard deviation of 0.037. The adoptive family functioning score have a mean score of 7.70, with a standard deviation of 0.364 (See Table 1).

Social support scores were also examined for biological parents and adoptive parents. The biological parents have social support scores with a mean of 14.62, with a standard deviation of 0.021. The adoptive parents have social support scores with a mean of 14.73, with a standard deviation of 0.182 (See Table 1).

There are no major differences between the sub sample and the entire population in the NLSCY. There are minor differences in the exact frequencies of some of the variables, but the sub sample follows the general trends of the overall population.

Therefore, there are no significant differences that will affect the analysis in the study.

The biological and adopted children samples have slight differences in some of the values. The adopted children are slightly older in mean age. The adopted children are more likely to be only children (24% versus 8%). The occupations, education levels, and household incomes varied slightly between adopted and biological families, indicating adoptive families may be of a higher socioeconomic status than the biological families in the sample. The differences between biological and adopted children found in socioeconomic status will be further discussed following the analysis of the central hypotheses.

### Measures

Many of the concepts deemed important to measure in the NLSCY are measured through the use of scales. Each scale is a group of questions or items that measure a certain concept after the answers to the items are put together. The concepts that are measured by a scale are then calculated into a factor score in the NLSCY. During the development of the NLSCY, an attempt was made to select scales that had been used in other studies because the psychometric properties of the measures produced by each scale were available and supported the measures usefulness for research (Statistics Canada and Human Resources Development Canada, 1995).

There were several steps completed in the validation of the scale data in the NLSCY. First, factor analyses were performed on all scales to determine the constructs

inherent in each scale. Then, scale scores were calculated based on the structure. Finally, reliability measures were produced (Statistics Canada and Human Resources Development Canada, 1995).

Reliability of each of the scales refers to the accuracy, dependability, consistency or ability to replicate with the same results. In the NLSCY, reliability is referred to as the degree to which the scale scores produce stable measures and hence, are free of random forms of measurement error (Statistics Canada and Human Resources Development Canada, 1995). There are many ways to measure reliability. One of the most widely accepted measures is Cronbach's alpha coefficient and this is the method used in the NLSCY. This is a measure of the internal consistency of the items within the factor and based on the average covariance of items within the factor. Alpha is interpreted as a correlation coefficient, ranging from 0 to 1, providing an estimate of a score's reliability (Statistics Canada and Human Resources Development Canada, 1995). Usually, an alpha coefficient below 0.60 is viewed as less reliable than desired. Cronbach's alpha for the NLSCY was computed with SAS software, using normalized weighted data (Statistics Canada and Human Resources Development Canada, 1995). Cronbach's alpha values are stated for each of the dependent, independent, mediating, and control variable scales.

#### Dependent Variable – Child Outcome Measures

The dependent variable is child behavioral and socio-emotional outcomes. The behaviors that will be included consist of hyperactivity/inattention, prosocial behavior, emotional-anxiety disorder, physical aggression, property offences, and indirect aggression. These child outcomes will be examined because they cover a variety of

dimensions that children display to different degrees in the childhood years. These behaviors are crucial to their overall adjustment and well-being.

The hyperactivity scale is comprised of questions from the Ontario Child Health Survey (OCHS) and questions from the Montreal Longitudinal Survey (Statistics Canada and Human Resources Development Canada, 1995). The inattention scale also included items from the OCHS and items from the Montreal Longitudinal Survey (Statistics Canada and Human Resources Development Canada, 1995). A factor score was created using the compiled items in the NLSCY. The total score then ranged from 0 to 16. A high score indicated the presence of hyperactive/inattentive behavior, while a low score indicated the absence of the behavior. The Cronbach's alpha value for the factor score is 0.838 (Statistics Canada, 1995). (See Appendix A). The mean score of hyperactivity for the sub sample population is 4.62, with a standard deviation of 3.575 and a standard error of 0.30 (See Table 2).

The prosocial behavior scale included items from the OCHS, items from the Montreal Longitudinal Survey, and items from a scale developed by K. Weir and G. Duveen (Statistics Canada and Human Resources Development Canada, 1995). A factor score was created for these items in the NLSCY. The total score varies from 0 to 20. A high score indicates prosocial behavior. The Cronbach's alpha for the factor score is 0.816 (Statistics Canada, 1995). (See Appendix A). The mean score for the sub sample is 12.33, with a standard deviation of 3.811 and a standard error of 0.33 (See Table 2).

The emotional disorder scale comprised questions from the OCHS (Statistics Canada and Human Resources Development Canada, 1995). The anxiety scale included questions from the Montreal Longitudinal Survey as well as questions regarding

emotional disorder from the OCHS (Statistics Canada and Human Resources Development Canada, 1995). A factor score was created from these items in the NLSCY. The total score varies from 0 to 16. A high score indicates the behaviors associated with anxiety and emotional disorder, while a low score indicates the absence of these behaviors. The Cronbach's alpha value for the factor score is 0.794 (Statistics Canada, 1995). (See Appendix A). The mean score for the sub sample is 2.53, with a standard deviation of 2.551 and a standard error of 0.22 (See Table 2).

The physical aggression scale was comprised of questions from the Montreal Longitudinal Survey and items from the OCHS (Statistics Canada and Human Resources Development Canada, 1995). The conduct disorder scale was comprised of questions from the OCHS (Statistics Canada and Human Resources Development Canada, 1995). A factor score was created for these accumulated scales in the NLSCY. The resulting score varies from 0 to 12, a high score indicates behaviors associated with conduct disorders and physical aggression, while a low score indicates the absence of these behaviors. The Cronbach's alpha value for the factor score is 0.770 (Statistics Canada, 1995). (See Appendix A). The mean score for the sub sample is 1.45, with a standard deviation of 1.905 and a standard error of 0.016 (See Table 2).

The indirect aggression scale consists of questions from Lagerspetz, Bjornqvist, and Peltonen of Finland (Statistics Canada and Human Resources Development Canada, 1995). A factor score was then created from the items in the NLSCY. The resulting score varies from 0 to 10. A high score indicates behaviors associated with indirect aggression, while a low score indicates the absence of those behaviors. The Cronbach's alpha value for this factor score is 0.781 (Statistics Canada, 1995). (See Appendix A).

The mean score for the sub sample is 1.21, with a standard deviation of 1.684 and a standard error of 0.015 (See Table 2).

Property offences for children were determined from a series of questions. A factor score was created for these items in the NLSCY. The total score varies from 0 to 12. A high score indicates behaviors associated with property offences, while a low score indicates the absence of these behaviors. The Cronbach's alpha value for this factor score is 0.637 (Statistics Canada, 1995). (See Appendix A). The mean score for the sub sample is 0.83, with a standard deviation of 1.241 and a standard error of 0.011 (See Table 2).

#### Independent Variable – Child's Adoption Status

The independent variable is the child's adoption status. This variable specifically indicates the parental status where the child lives. Children living with both biological parents will be used and compared with children living with two adoptive parents. The PMK indicated in the questionnaire the type of household the child resided in. A dummy variable was created for this variable. Adopted children are coded as "1" and biological children will be coded as "0". The sample includes 10 891 (98.7%) biological children and 145 (1.3%) adopted children (See Table 1).

#### Mediating Variable – Parenting Practices

The parenting scale in the NLSCY measures certain parental behaviors. Specifically, two separate scales were used. The first scale measured positive interaction, hostile/ineffective parenting, and consistent parenting. The second scale measured



aversive and non-aversive parental management techniques (Statistics Canada and Human Resources Development Canada, 1995).

The questions on the positive interaction, hostile/ineffective parenting, and consistent parenting were provided by Dr. M. Boyle at Chedoke-McMaster Hospital (Statistics Canada and Human Resources Development Canada, 1995). This was based on Dr. Ken Dodge's work at Vanderbilt University (Statistics Canada and Human Resources Development Canada, 1995) and an adaptation of Strayhorn and Weidman's Parent Practices Scale (Strayhorn & Weidman, 1998). The questions which measured aversive and non-aversive parenting techniques were provided by Dr. M. Boyle (Statistics Canada and Human Resources Development Canada, 1995).

Positive interaction for parenting was created as a factor score in the NLSCY. The resulting total score varies from 0 to 20. A high score indicates positive parent-child interactions, while a low score indicates the lack of these interactions. The Cronbach's alpha for this factor score is 0.808 (Statistics Canada, 1995). (See Appendix B).

Hostile/ineffective parenting was measured and a factor score was created in the NLSCY. The total score that resulted ranges from 0 to 25. A high score indicates hostile/ineffective parent-child interactions, while a low score indicates the lack of these interactions. Cronbach's alpha for this factor score is 0.706 (Statistics Canada, 1995). (See Appendix B).

Consistency in parenting was measured with a series of items and then a factor score was created in the NLSCY. The score ranges between 0 and 20. A high score indicates consistent parenting behavior, while a low score indicates inconsistent parenting

behavior. Cronbach's alpha for this score is 0.660 (Statistics Canada, 1995). (See Appendix B).

Punitive parenting behaviors were measured and then created into a factor score in the NLSCY. The total score ranges from 0 to 19. A high score indicates punitive/aversive parent-child interactions, while a low score indicates a lack of these behaviors. Cronbach's alpha for this factor score is 0.569 (Statistics Canada, 1995). (See Appendix B).

The PMK answered each section of the parenting questionnaire by indicating the results that were most accurate of their parenting for the target child.

The parenting scales were examined for the children ages 4 to 11 in the NLSCY. Positive interaction parenting for this sample has a mean of 12.82, on a scale of 0 to 20. The standard error is 0.026 and the standard deviation is 3.011. The skewness value is -0.72, with a standard error of 0.021 and the kurtosis value is -0.261, with a standard error of 0.042 (See Table 1). This indicates that skewness and kurtosis is not significant for positive interactions in parenting. Hostile/ineffective parenting has a mean of 8.90, on a scale of 0 to 25. The standard error is 0.032 and the standard deviation is 3.774. The skewness value is 0.533, with a standard error of 0.021 and the kurtosis value is 0.296, with a standard error of 0.042 (See Table 2). This indicates that skewness and kurtosis is not significant for hostile/ineffective parenting. Consistent parenting has a mean of 14.86, on a scale of 0 to 20. The standard error is 0.029 and the standard deviation is 3.445. The skewness value is -0.670, with a standard error of 0.021 and the kurtosis value is 0.251, with a standard error of 0.042 (See Table 2). This indicates that skewness and kurtosis for consistent parenting is not significant. Punitive parenting has a mean of

8.99, on a scale of 0 to 19. The standard error is 0.017 and the standard deviation is 2.018. The skewness value is 0.070, with a standard error of 0.021 and the kurtosis value is 0.055, with a standard error of 0.042 (See Table 2). This indicates that skewness and kurtosis is not significant for punitive parenting. These results show that all parenting practices fall on a normal distribution curve.

### Control Variables

Gender will be transformed from an alphanumeric variable (male or female) into a dummy variable, coding males as "0" and coding females as "1" to examine the difference between the genders. Of the children 4 to 11 years old in the NLSCY, 49.2% are female and 50.8% are male (See Table 1).

Number of Siblings in the NLSCY data includes full, half, step, adopted, and foster siblings. However, only siblings living in the household are included. This variable specifically includes children aged 0 to 17 currently living in the household and ranges from one sibling to three siblings for the sample (Statistics Canada, 1995).

Education of the PMK is divided into four categories. The categories consist of less than secondary, secondary school graduated, beyond high school, and college or university degree. The frequencies of the categories are rather similar, but the most common is having college or university degrees (Statistics Canada, 1995).

Occupation of the PMK is divided into categories generated from the prestige of the career. There are 15 hierarchal categories of occupations for the PMK to identify their occupation in (Statistics Canada, 1995). The most common occupation is semi

skilled clerical/sales, followed by unskilled clerical/sales and skilled clerical/sales (See Table 1). The ranks of the occupations are used for this control.

Income is constructed from the total household income. It is divided into 9 distinct categories with 10 000 dollar intervals for specificity (Statistics Canada, 1995). The mean for household income for the sub sample is between 40 000 to 49 000 dollars (See Table 1). These ranks are used for controlling income in the regression analyses.

Family functioning was created into a factor score from twelve items in the NLSCY. The resulting total score varies between 0 and 36. A high score indicated family dysfunction, while a low score indicates positive family functioning. The scale is aimed at providing a global assessment of family functioning and the quality of the relationships between parents or partners. Cronbach's alpha value for this factor score is 0.88 (Statistics Canada, 1995). (See Appendix C). The mean score for the sub sample is 8.24, with a standard deviation of 5.067 and a standard error of 0.043 (See Table 2).

Social support and perceived social support were measured from several questions. These questions are a shorter version of the Social Provisions Scale (Cutrona & Russell, 1989). This version of the scale was shortened within the framework of project "Better Beginnings, Better Future" (Cameron & Vanderwoerd, 1997). The shortened version measures three components of social relationships including guidance, reliable resources, and attachment. These questions were answered by the PMK within the parenting scale. A factor score was created ranging from 0 to 18 in the NLSCY. A low score indicated low social support and a high score indicated a high level of social support. Cronbach's alpha value for this factor score was 0.82 (Statistics Canada, 1995).

(See Appendix C). The mean score for the sub sample is 14.45, with a standard deviation of 2.813 and a standard error of 0.024 (See Table 2).

Table 1

## Sample Description of Target Child and Household

Variable	NLSCY	Sub Sample	Biological Intact	Adoptive Intact
N	22 831	11 036	10 891	145
Child's Age	5.16	7.42	7.35	7.99
% Female	49.1	49.2	49.1	46.9
% Male	50.9	50.8	50.9	53.1
% Female PMK	91.8	91.5	91.5	86.9
% Male PMK	8.2	8.5	8.5	13.1
Family Income (%)				
Less than \$10 000	0.7	0.7	0.6	0.0
\$10 000 - 14 999	3.2	2.6	2.2	2.8
\$15 000 - 19 999	4.6	4.2	3.9	2.1
\$20 000 - 29 999	12.5	11.7	11.4	11.8
\$30 000 - 39 999	16.3	16.5	16.5	13.9
\$40 000 - 49 999	17.0	17.2	17.4	10.4
\$50 000 - 59 999	14.4	14.6	14.8	13.2
\$60 000 - 79 999	17.9	18.4	18.8	22.9
\$80 000 or more	13.4	14.1	14.3	22.9
Occupation (%)				
Self employed professional	0.2	0.2	0.3	0.0
Employed professional	8.3	8.2	8.4	14.0
High level management	2.4	2.5	2.6	2.8
Semi professional	11.5	11.3	11.8	19.6
Technician	1.8	1.6	1.6	0.0
Middle Management	6.8	6.6	6.5	8.4
Supervisor	2.5	2.8	2.9	4.7
Foreman/ forewoman	0.9	1.0	1.1	0.9
Skilled clerical/ sales/service	13.1	13.2	13.5	10.3
Skilled crafts and trade	2.5	2.5	2.4	0.9
Farmer	1.3	1.5	1.7	1.9
Semi-skilled clerical/sales	19.1	18.3	17.5	12.1
Semi-skilled manual	13.5	6.9	6.8	7.5
Unskilled clerical/ sales/service	6.7	13.7	13.8	12.1
Unskilled manual	7.9	8.0	7.2	3.7
Farm laborers	1.6	1.7	1.9	0.9

Education (%)				
Less than secondary school	17.3	17.5	15.5	15.9
Graduated secondary school	19.7	20.8	21.9	11.0
Beyond high school	28.1	28.4	27.2	29.7
College or university degree	34.8	33.3	35.4	43.4
Siblings in the Household (%)				
No other children	18.7	11.5	8.0	24.8
One other child	45.4	46.4	48.1	51.0
Two other children	24.6	28.8	30.5	16.6
Three other children	11.3	13.3	13.4	7.6
Family Functioning Score (mean)	8.19	8.24	7.83	7.70
Social Support Score (mean)	14.48	14.45	14.62	14.73

Table 2

## Analysis of Sub Sample for Dependent and Mediating Variables

	Mean	Standard Deviation	Standard Error	Variance	Skew ness	Skew ness Standard Error	Kurtosis	Kurtosis Standard Error
Hyperactivity/ Inattention (Children aged 4-11)	4.62	3.575	.030	12.783	0.746	0.021	0.056	0.042
Prosocial Behavior (Children aged 4-11)	12.33	3.811	0.021	14.526	-0.174	0.021	-0.283	0.042
Indirect Aggression (Children aged 4-11)	1.21	1.684	0.015	2.835	1.594	0.021	2.438	0.042
Aggression (Children aged 4-11)	1.45	1.905	0.016	3.630	1.789	0.021	3.571	0.042
Property Offences (Children aged 4-11)	0.83	1.241	0.011	1.540	2.318	0.021	8.189	0.042
Emotional-	2.53	2.551	0.022	6.510	1.241	0.021	1.586	0.042

Anxiety Disorder (Children aged 4-11)								
Hostile/ Ineffective Parenting	8.90	3.774	0.032	14.246	0.533	0.021	0.296	0.042
Positive Interaction in Parenting	12.82	3.011	0.026	9.065	-0.072	0.021	-0.261	0.042
Parental Consistency	14.86	3.445	0.029	11.867	-0.670	0.021	0.251	0.042
Punitive Parenting	8.99	2.018	0.017	4.072	0.070	0.021	0.055	0.042

### 3 Results and conclusions

#### Results

The basic analytic strategy used for correlational designs such as the NLSCY is regression analyses. This is the strategy that will be used for the following analysis. A probability (alpha) level of 0.05 will be used because this specific study is largely exploratory. There is, however, a chance of Type 1 error occurring with the multiple tests being completed. Type 1 error is defined as observing a relationship when there is not one actually present, in other words, a false positive result (Sankoh, Huque, & Dubey, 1997). However, the probability level chosen is low enough to risk the 5% error in this analysis. A more refined measure correcting for the number of tests and the probability of Type 1 error could be used in subsequent studies. As suggested by a Bonferroni correction (Sankoh et al., 1997), the probability level could be reduced to lower the risk of Type 1 error. In this analysis, the actual probability levels are reported, so the reader may apply more restrictive criteria if need be.

#### Hypothesis Testing

##### Hypothesis 1

The first hypothesis states that adopted children will experience different parenting practices than biological children. This central hypothesis is narrowed into four specific parental practice hypotheses. The first specifies that adopted children will experience increased hostile/ineffective parenting. For this hypothesis Pearson's correlation between adoption status and hostile/ineffective parenting revealed a -0.007 association with a 0.437 probability level (See Table 3). This does not indicate a



significant association, rejecting the first hypothesis. The second hypothesis specifies that adopted children will experience increased inconsistency in parenting. The Pearson correlation for this hypothesis between adoption status and parental consistency revealed a 0.035 association with a 0.000 probability level (See Table 3). This result indicates a significant relationship between adoptive status and consistency. This hypothesis will be further analyzed in the following section. The third hypothesis specifies that adopted children will experience increased punitive parenting. Adoption status and punitive parenting had a -0.016 association with a 1.00 probability level (See Table 3). These results indicate there is no association between adoption status and punitive parenting, rejecting the hypothesis. The final hypothesis specifies that adopted children will experience decreased positive interactions with parents. Adoption status and positive interactions in parenting had a 0.015 association with a 0.115 probability level (See Table 3). This result also indicates no association between adoptive status and positive parental interactions and thus rejects the hypothesis.

For three of the components of the first central hypothesis, it is observed that there is no association between parental practices and adoption status. Specifically, hostile/ineffective parenting, positive parental interactions, and punitive parenting techniques are not connected with the adoptive status of the child. Nevertheless, there is an association between parental consistency and the adoptive status of the child. However, this association reveals that adoptive parents are in fact more consistent than biological parents, which is the opposite of the original hypothesis. This result, however, might be due to the larger number of adoptive families with only one child living in the household. It may simply be easier to parent in a consistent manner when there is only

one child. These findings result in the rejection of each of the hypotheses made about parenting practices of adoptive parents. The hypothesis regarding parental consistency and adoption status will also be rejected since the opposite results were found, indicating more consistency in adoptive parenting, not more inconsistency. Parental consistency will be examined in more depth during post hoc analysis of the results.

### Hypothesis 2

The next central hypothesis states that different parenting practices displayed by adoptive parents are associated with negative child behavioral outcomes. This hypothesis was narrowed into six specific child outcome hypotheses. The first hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting are associated with increased hyperactivity/inattention behavior. Pearson correlation revealed that the associations were 0.431, -0.191, 0.238, -0.039 respectively. The probability levels for each of the relationships are 0.000 (See Table 3). These results indicate that all the parenting practices are associated with hyperactivity in children. The second hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with decreased prosocial behavior. The associations were 0.431, 0.165, -0.242, and 0.168 respectively. The probability levels for each of the associations are 0.000 (See Table 3). This indicates that parenting practices are associated with prosocial behavior in childhood. The third hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated

with increased emotional-anxiety disorder behavior. The associations are 0.371, -0.122, 0.177, and -0.139 respectively. The probability levels for these relationships are also 0.000 (See Table 3). This indicates that parenting practices are correlated with emotional-anxiety disorder behaviors in children. The fourth hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased aggression. The associations are 0.450, -0.141, 0.264, and -0.073 respectively. The probability levels for these relationships are 0.000 (See Table 3). This indicates that parenting practices are correlated with aggressive behavior in children. The fifth hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased indirect aggression. The associations are 0.312, -0.131, 0.163, and -0.158 respectively. The probability levels for these associations are 0.000 (See Table 3). This also indicates that parenting practices are associated with indirect aggression in children. The final hypothesis specifies that increased hostile/ineffective parenting, inconsistent parenting, punitive parenting, and decreased positive interactions in parenting will be associated with increased property offences. The associations are 0.410, -0.179, 0.226, and -0.061 respectively. The probability levels for these relationships are 0.000 (See Table 3). These correlations indicate that parenting practices are associated with property offences in childhood.

Therefore, the analysis shows that hypothesis two cannot be rejected because each parenting practice measure is found to be associated with each child behavioral outcome measures. This hypothesis analyzed the relationship between parenting practices and

both adopted and biological children's behavioral outcomes. The specific examination of adopted children and behavioral outcomes will be looked at during the analysis of hypothesis three.

### Hypothesis 3

The final central hypothesis states that adopted children will have behavioral outcomes equal to biological children when controlling for parenting practices. This hypothesis did not require a regression analysis because it was previously found in hypothesis one that child behavioral outcomes of adopted children and biological children are equal. According to Baron and Kenny (1986), a mediator represents the means to which the independent variable will influence the dependent variable. The mediating variable, parenting practices, did not behave as a mediator because the expected differences in the adoption status of children did not significantly account for variations in parenting practices. Additionally, variations in parenting practices did not account for significant changes in children's behavior (Baron & Kenny, 1986).

However, the associations for adoption status and child behavioral outcomes were examined for further explanation. Adoption status and childhood inattention and hyperactivity have an association of 0.012 with a probability level of 0.213 (See Table 3). Adoption status and childhood prosocial behaviors have an association of 0.011 with a probability level of 0.243 (See Table 3). Adoption status and childhood emotional-anxiety behavior has an association of -0.007 with a probability level of 0.439 (See Table 3). Adoption status and childhood aggressive behavior has an association of 0.014 with a 0.439 probability level (See Table 3). Adoption status and childhood indirect aggression

has an association of 0.018 with a probability level of 0.061 (See Table 3). Finally, adoption status and property offence commission in childhood has an association of 0.023 with a probability level of 0.16 (See Table 3). These results indicate that none of the measures of child behavioral outcomes are significantly associated with adoption status. Therefore, the third central hypotheses must be rejected.

### Post Hoc Analysis

There are significant findings found in other variables that are associated with the adoptive status of children that would benefit from further examination. Child's age and adoption status has a 0.032 correlation with a 0.001 probability level (See Table 3). Number of children in the household aged 0 to 17 and adoption status has a -0.058 correlation and a 0.000 probability level (See Table 3). Education and adoption status has a correlation of 0.019 with a probability level of 0.043 (See Table 3). PMK occupation and adoption status has a correlation of -0.035 and a probability level of 0.002 (See Table 3). Total income of the household and adoption status has a correlation of 0.024 with a probability level of 0.010 (See Table 3). Family functioning and adoptive status has a correlation of -0.004 with a probability level of 0.010 (See Table 3). These analytic results suggest that children's adoptive status may represent a different type of demographic group of children than biological children. In order to determine this possibility, further assessment was conducted.

The age of the children in adoptive families and biological families are similar, but do show a small difference. Biological children have a mean age of 7.35, with a standard error of 0.022 and adopted children have a mean age of 7.99, with a standard

error of 0.181 (See Table 1). This shows that on average, adopted children are slightly older than the biological children. This age difference could have implications for parental techniques employed and consequent behaviors. This could mean that parents of older or younger children parent differently according to the child's age. Thus, the older or younger children could have more positive or negative outcomes due the techniques used.

Family functioning scores are also different for intact biological families and intact adoptive families. Biological intact families have a mean family functioning score of 7.83. The score for intact adoptive families have a mean of 7.70 (See Table 1). These scores appear to be fairly similar, with the biological families being only slightly higher than adoptive families, indicating a more functional family. These results do not account for a large difference between the two family types which perhaps would lead to different parental practices and childhood behaviors. Therefore, family functioning should not play a major role in parenting practices and child outcomes.

The number of children in the household does indicate differences between the two family types. For biological intact families, 8.0% are only children and 48.1% have one other sibling. On the other hand, 24.8% of adopted children are the only child in the household and 51.0% have one other sibling (See Table 1). This indicates that more adopted children tend to be the only child in the house or among a small number of children in the household in comparison to biological children. In accordance with investment theory, these results could indicate that adoptive parents are not required to share their resources and capital among more than one child. Biological parents tend to have more children in the household, therefore dividing their resources among more

children. The difference in the number of children in the household could have implications for parental practices and child behavioral outcomes. Therefore, adoptive parents can put more time and energy into raising just one child and this will result in a higher quality child than families with larger numbers of children to parent.

Parental education levels between the family types are also different for adoptive and biological families. Adoptive parents tend to have a higher education level than biological parents. Adoptive parents had 43.4% having a college or university degree, contrasting biological parents who had 35.4% completing college or university degrees. Biological parents had 37.4% of individuals completing high school or less, while adoptive parents had only 26.9% completing high school or less (See Table 1). These results indicate that on average, adoptive parents have higher education levels than biological parents. Parental education level differences could have implications for the types of parental practices employed and subsequent outcomes for the children in the household. This could mean that higher educated parents will employ more effective parenting skills on their children. Therefore, their children will have more positive behaviors and outcomes due to their parents' education. Also, according to investment theory, parents will pass down educational endowments to the child, so the child will benefit over children whose parents are not highly educated.

Parental occupations also revealed differences between biological and adoptive parents. On average, adoptive parents held a higher percentage of high prestige occupations, with 36.4% of individuals being employed as either a self employed professional, an employed professional, in high level management, or a semi professional. Biological parents had 23.1% of individuals fall in those top four categories

(See Table 1). These results indicate that, on average, adoptive parents have higher prestige occupations than biological parents. The differences in parental occupational prestige could have implications for parenting techniques and skills as well as their child's resulting behaviors.

The total household income revealed differences between the biological and adoptive families. Adoptive families appear to have on average an overall higher income than biological families. The adoptive families had 45.8% of households earning 60 000 dollars or more annually, while the biological families had 33.1% of households earning this amount (See Table 1). These results indicate that adoptive parents earn higher incomes than biological parents. The differences in total household income could have implications for both parenting practices and their child's outcomes. This could mean that households with higher incomes employ more effective parenting skills on their children due to their higher socioeconomic status. Therefore, their children will have more positive behaviors and outcomes due to their parents' income level. Also, according to investment theory, parents will pass down financial endowments to the child, so the child will benefit over others whose household income is not as high.

The combination of total household income, parental occupational prestige, and parental education level are the components of socioeconomic status. In all three cases, on average, the adoptive parents appear to be in higher categories than biological parents. Therefore, adoptive parents represent a higher socioeconomic status level. This difference could be associated with parenting practices of the biological and adoptive parents. This is an area that could lead to further research, looking at adoptive status being mediated by the socioeconomic status of the parents and families.



Gender of the child was not examined in further depth because of the non-significant results found between adopted and biological children. Therefore, gender of the adopted child was not influencing the differences in child behaviors.

The one specific hypothesis from the first central hypothesis that yielded significant results was the relationship between parental consistency and the child's adoption status. In order to test whether or not the one significant finding between adoptive status and parenting consistency is due to other correlated factors, a multiple regression of these other factors and adoptive status on parental consistency was performed. The results show that when age of child, having only one child in the household, level of family functioning, PMK education level, parental occupational prestige, and household income are entered, there still remains a marginally significant effect for adoptive status on parenting consistency ( $\beta = 0.022$ ;  $p = 0.053$ ). However, this marginal significance could still be due to the age of the PMK and PMK spouse that allow for greater consistency. Investigating parental consistency in more depth is an area that requires further research. Socioeconomic and demographic factors such as parental age that could be more related to parental consistency rather than adoptive status after further analysis.

During hypothesis testing and post hoc analysis, it is seen that the adoptive and biological parents differ in certain demographic ways such as better education, higher income, higher prestige occupations, and fewer children. These systematic differences may suggest that adoptive parents have children with good behavioral outcomes due to these factors. Thus, there is a possibility that the reason there is no difference between

the adoptive and biological parents is because the control variables are contributing positively to the outcomes of their child but adoption status is contributing negatively.

In order to test whether or not the non-significant findings between adoptive status and parenting practices and behavioral outcomes is due to other correlated factors, a multiple regression of these other factors and adoptive status on parental practices and child outcomes was performed. By performing the hierarchical regression, it can be seen if adoption status has any significant effect after the control variables are accounted for. The hierarchical regression was done for each parenting practice and then for each child behavioral outcome measure as the variable being predicted.

The results of the hierarchical regression for parenting practices revealed that hostile/ineffective parenting, positive parenting, and punitive parenting did not have significant associations with adoption status, once the control variables were included. The results show hostile/ineffective parenting ( $\beta = 0.003$ ;  $p = 0.796$ ), positive parenting ( $\beta = 0.011$ ;  $p = 0.345$ ), and punitive parenting ( $\beta = 0.004$ ;  $p = 0.748$ ). Parental consistency was shown to be marginally significant in the analysis discussed previously.

The results of the hierarchical regression for child behavioral outcomes revealed that hyperactivity/inattention, prosocial behavior, emotional-anxiety disorder, and indirect aggression did not have significant associations with adoption status, once the control variables were added into the analysis. The results empirically show hyperactivity/inattention ( $\beta = 0.013$ ;  $p = 0.263$ ), prosocial behavior ( $\beta = 0.014$ ;  $p = 0.204$ ), emotional-anxiety disorder ( $\beta = -0.011$ ;  $p = 0.351$ ), and indirect aggression ( $\beta = 0.015$ ;  $p = 0.209$ ). However, the results for aggression and property offences did yield associations with adoption status. The results showed marginal significance for

childhood aggression ( $\beta = 0.022$ ;  $p = 0.052$ ) and property offence commission ( $\beta = 0.023$ ;  $p = 0.044$ ).

The results that were obtained in this analysis consisted of populations from the sub sample that ranged from a minimum of 7607 individuals to a maximum of 11 036 individuals (See Table 3). These population sizes remain relatively stable for each of the variables, and therefore, results cannot be rejected due to the level of respondents.

### Discussion

The main purpose of this research is to examine possible differences between biological and adopted children's behavioral outcomes and if the relationship is mediated by parenting practices. This was divided into three central hypotheses. The first hypothesis suggested that adopted children would experience an increase in negative parenting practices. The second hypothesis suggested that parenting practices are associated with childhood behavioral outcomes. The third hypothesis then suggested that when controlling for parenting practices, the behavioral outcomes between the adopted children and biological children would be equal. The findings from the analysis propose that there is no significant association between adopted and biological children in their behavioral outcomes. Also, the analysis indicates that there is an association between parenting practices and child behavioral outcomes. However, there is no difference in the parenting practices of adoptive parents and biological parents, except for consistency. These main findings refute the hypothesis and suggest that adoptive parents and biological parents do not differ in their parenting practices. However, adoption status and parental consistency are associated with one another. The results show that adoptive

parents implement more consistency than biological parents in their parenting techniques. The finding that adoptive parents are more consistent in their parenting than biological parents also refutes the hypotheses.

The hierarchical regression analysis also produced results that indicated aggression and property offence commission in childhood is marginally associated with adoption status after controlling for demographic factors. These results are similar to previous research in the same area. This could indicate that adopted children are slightly more aggressive in their temperament and are more likely to act out in various ways with this aggression, than biological children. This is an area that should be examined in more depth in future research to determine why this is occurring. However, it does not appear that childhood aggression and property offence commission is mediated through parental techniques.

The data set used for the analysis in this research is very large. Thus, very small correlations that account for only a minor amount of variance is still considered to be statistically significant. This is a point that should be considered when examining the significant relationships. Overall, the associations between the parenting practices and child behavioral outcomes are strong, whereas, other relationships between the variables vary and are occasionally very small. The exact Pearson correlations and probability levels are reported for the reader. The association strengths should be considered when examining the results.

The non-significant results that were found in this research can be looked at from two different views. On one hand, the analytic results could have produced a false negative. If this were the case, it would mean that adoptive parents do in fact parent

differently than biological parents. Specifically, they implement less parental consistency, more punitive parenting, more hostile/ineffective parenting, and less positive interactions with their children. Also, that the adopted children have poorer outcomes because of the skills their parents employ. It could be argued that such results were not present because they were suppressed in the data analysis. Data problems could be from a variety of issues such as inaccuracy in the parenting or child outcome measures.

Perhaps the questions being asked of the PMK are not precise enough to measure the differences between adoptive and biological parents or adoptive and biological children. Also, the PMK could have been biased in responses to the questionnaires. The PMK may not be able to see that they are in fact implementing certain parental techniques that are negative for their child. They also may be aware of negative parenting skills but not want to admit that they are using these techniques with their children. The sampling of individuals could also have played a role in a false negative result. The sample of adopted children versus biological children was skewed with a large number of more biological children being sampled than adopted children. In future research, sample sizes might be more similar in number to be able to have a more accurate comparison. Also, different techniques could be used to collect the information such as interviews with the families or observation sessions of children with the parents. These techniques would avoid self answering biases of parents.

On the other hand, it seems far more likely that the results of this analysis are an accurate picture of parenting and childhood behavioral outcomes occurring in adoptive and biological families. These findings indicate there is no difference between adoptive and biological parenting practices, except for parental consistency which is slightly more

prominent in adoptive parenting practices than biological parenting practices. In addition, there are no differences in child behavioral outcomes between adopted and biological children. Since there is no difference between adopted children and biological children, there was no observed difference between the genders. This side of the analysis of the findings is the assumption of this research and leads to the conclusion that in fact this is the main conclusion of this study.

The results of the analysis not only fail to support the hypotheses, but also the theoretical frameworks. Investment theory and sociobiological theory both suggested that parenting practices would be different for adopted children than biological children. Investment theory focused on parents investing more in children that were of closer similarity physically and genetically. These children would receive more of the parents' time, energy and resources. Sociobiological theory focused on parents being more attentive to children that would increase their inclusive fitness. Since biological children share half their genes with parents, parents choose to devote more to them to increase the reproductive success of their genes. The results obtained do not fit into the framework of these theories.

Investment theory does suggest that with more children in the family, the investment per child will be reduced. This may be the situation since many of the adopted children were only children. Only children are theorized to be of higher quality since they are receiving all their parents' resources. This is interesting since investment theory would argue that parents who restrict their fertility can optimize their parenting investment. However, this would have to be researched more in depth to have conclusions.

Overall, perhaps alternative theories could be used as frameworks to study adopted children, since investment theory and sociobiological theory do not seem ideal to coincide with these results. Alternate theories, such as social exchange theory could be used as a possible framework.

In reviewing past literature, there is evidence that in previous studies the parenting practices implemented for adopted children differed from those employed with biological children. Similarly, previous literature has also shown that adopted children experience negative behavioral outcomes in areas such as aggression and emotional disorders (Deater-Deckard & Plomin, 1999; Juffer, et al., 2004). These previous findings were not fully present in this research, with the exception of adopted children displaying slightly more physical aggression and property offence commission. However, Deater-Deckard and Plomin (1999) recommend interpreting the results of their research with caution due to the small sample size and disproportionately high number of control cases. Also, Juffer et. Al (2004) used a sample of internationally adopted children. These children may have shown more externalized behavior problems due to their childhood experiences before placement with the adoptive parents. The overall findings in this study provide evidence to the conclusion that adopted children are not different from biological children, which is a finding that has been revealed in some previous studies. This finding adds to the previous inconclusive findings on outcomes of adopted children. In the past, research has been inconclusive about actual differences in child outcomes of adopted children and biological children. Although, there is agreement that adopted children have an increased risk for the development of behavior problems. The conclusion of this research is that it exposes myths regarding adoption status. This is

because the data used is representative of private households in Canada. Many previous studies have drawn populations of adopted children from mental hospitals and other institutions in which the adopted children may have other factors contributing to their negative outcomes. Although, the view that adopted children have different outcomes cannot be rejected because other researchers have reported these findings, it must be considered the population on which the research is being conducted. This study contributes to exposing myths for adopted and biological children living in private Canadian households.

### Limitations

There are limitations to this research that need to be addressed. Firstly, a major weakness of this study is that certain variables, that may act as additional mediating variables in the relationship, cannot be controlled. These factors include the age of the child at the adoption placement and the conditions and events that occurred in the child's life before placement. These are factors that may influence both their behavioral outcomes as well as adoptive parents' behavior. The child may have been living in harsh environments before the adoption placement. Therefore, the child may display negative behaviors in childhood due to their treatment during this time period. In addition, there is no information about prenatal care, birth problems, or birth parents' history. The birth mother may have experienced a difficult pregnancy or birth process. The child may have experienced trauma that caused subsequent childhood problems. There is also no information about adoptive parents including any psychological effects they may have from experiencing infertility. If the adoptive parent experienced grief or sorrow about



their inability to have a biological child, this negativity may be passed on to the child and affect the adoptive parents' ability to adequately parent. The inadequate parenting would possibly result in the child acting out and behaving more negatively. The ages of the PMK are also unknown, which may alter parenting practices implemented in the household. Parents of different ages may use different techniques which would result in different child behaviors.

Additionally, the composition of children in the family is unknown. It is not revealed which families have only adopted children or only biological children and which families are mixed with both adopted and biological children. The parenting styles in the mixed type of families may differ from those that are composed of strictly adopted or biological children. Parents in these family types may favor biological children and implement more negative parenting techniques on the adopted child. The unequal treatment between siblings may cause the adopted child to have both externalized and internalized behavior problems.

Finally, limitations in data collection exist. The PMK may have answered the questionnaires about parenting practices in a manner of how they are expected to behave instead of actual behavior. Parents may not realize their behavior towards certain children is different than their behavior towards other children. They also may not want to admit or realize that their parenting practices are not actually how they chose to respond in the questionnaire.

### Strengths

Although there are limitations to the current study, there are several contributions that the study will add to the adoption literature. A major strength of the study is the sample size. Past research has often been unable to obtain large samples of adopted children due to the discreet nature of the adoption process.

An additional strength is the diverse and robust set of measures for both parenting and child behavioral outcomes that are used in this study. This allows the study to be sensitive to observe deviations in specific areas of the parenting practices and child behaviors being examined.

There is an overall lack of literature that explores adopted children in comparison to biological children and adopted child behavioral outcomes. This study adds to this limited literature to expand knowledge of other researchers and professionals in the field of adoption.

Finally, myths that currently exist about adoption need to be addressed to uncover the reality. This research touches on a variety of held ideas about adopted children and adoptive parents that is not well explored in the literature. This is a major implication for adopted children and adoptive parents who struggle not be stereotyped in society.

### Future Research

The findings in this study lead to a variety of potential future research that would further knowledge in the area of adoption. Firstly, research could be conducted to observe possible differences between adopted children that are the only children living in the household and adopted children living in the household with other siblings. This

would be beneficial to observe if parenting practices are associated with the number of children they are parenting or if adoption status still plays a significant role.

Also, potential differences in parenting and outcomes could be examined for families that are mixed with both biological and adopted children. In the NLSCY data there is no indication if the families with adopted children consist of only adopted children or both adopted and biological children. It would be beneficial to see if these family types differ in their parenting techniques compared to strictly biological families. Also, it would be valuable to examine if adopted children and biological children receive different treatment within the same family.

In addition, different areas of childhood outcomes could be explored. This could include emotional adjustment, relationships with other children and adults, and other overall well-being measures. This would explore other areas of childhood outcomes that may be associated with adoption status of children.

Different family formations could also be examined. This study focused on intact only families. Perhaps differences between adopted children and biological children could arise in lone parent or step family configurations. Gay and lesbian adoptive families could also be explored to examine parental practices and if they differ from heterosexual parenting techniques.

Since variation was observed in the socioeconomic statuses of biological and adoptive intact families, including parental education level, occupational prestige, and household income, it should be analyzed if possible differences in parenting practices between the family types does exist, but was merely suppressed by the inequality in social standing.

Finally, research on parental consistency between adoptive parents and biological parents should be further examined. The results indicated minor significance, but should be looked at in more depth to rule out inconclusive results on adoptive parenting. Also, the finding that adopted children are more likely to display physical aggression and commit property offences should be further examined. Since it is not parenting practices that contribute to this behavior, it would be beneficial to examine other possible causes.

### Conclusions

There are several myths related to adopted children. Many people believe that adopted children have more difficulties due to their adoption status. This research has begun to clarify the perceived difficulties in the childhood of Canadian adopted children living in private households. The findings in this study have shown that behavioral outcomes between biological children and adopted children are equal, except for aggression and property offence commission. The findings also indicate that parenting practices between adoptive and biological parents do not differ, except indicating adoptive parents are more consistent in their parenting. This result signifies that the children's adoptive status is not an indication of differing parenting practices or negative childhood behavioral problems. It is imperative to realize that little or no differences are present between adopted children and biological children. The results obtained also do not fit with the theoretical frameworks of investment theory and sociobiological theory.

The findings in this research and subsequent studies could have implications for current and future adoptive families. The consequences of these results will, optimistically, contribute to the normalization of adoption and being an adoptive parent



Family Functioning Score (7)	-.012 Sig. .154 N 10 798	.027 * Sig. .002 N 10 798	.015 Sig. .078 N 10 798	.125 * Sig. .000 N 10 798	.124 * Sig. .000 N 935 1	.118 * Sig. .000 N 986 5												
Social Support Score (8)	.008 Sig. .317 N 11 112	-.016 * Sig. .054 N11 112	-.007 Sig. .395 N 11 112	.149 * Sig. .000 N 11 103	.134 * Sig. .000 N 938 8	.148 * Sig. .000 N 972 3	.508 * Sig. .000 N 10 752											
Hypersensitivity / Inattention (9)	-.190 Sig. .000 N 10 798	-.091 * Sig. .000 N 10 798	-.090 * Sig. .000 N 10 798	.070 * Sig. .000 N 10 321	-.075 * Sig. .000 N 929 9	-.078 * Sig. .000 N 10 561	.136 * Sig. .000 N 10 432	-.057 * Sig. .000 N 10 785										
Prosocial Behavior (10)	.195 Sig. .000 N 10 623	.153 * Sig. .000 N 10 623	-.043 * Sig. .000 N 10 623	-.056 * Sig. .000 N 952 3	.036 * Sig. .001 N 909 9	.050 * Sig. .000 N 943 2	.183 * Sig. .000 N 10 452	.159 * Sig. .000 N 10 235	-.143 * Sig. .000 N 10 235									
Emotional Disorder - anxiety (11)	-.017 * Sig. .042 N 987 4	.113 * Sig. .000 N 975 6	-.038 * Sig. .000 N 997 8	.000 Sig. .987 N 10 135	.018 Sig. .084 N 930 9	-.013 Sig. .157 N 976 2	.158 * Sig. .000 N 10 423	-.037 * Sig. .000 N 10 872	.448 * Sig. .000 N 10 856	.027 * Sig. .002 N 10 203								
Aggression Score (12)	.143 * Sig. .000 N 10 106	.086 * Sig. .000 N 10 201	.096 * Sig. .000 N 10 654	.021 * Sig. .017 N 10 365	-.036 * Sig. .001 N 927 6	-.050 * Sig. .000 N 974 5	.147 * Sig. .000 N 10 672	-.037 * Sig. .000 N 10 752	.457 * Sig. .000 N 10 842	-.206 * Sig. .000 N 10 570	.408 * Sig. .000 N 10 847							
Indirect Aggression (13)	.046 * Sig. .000 N 10 410	.140 * Sig. .000 N 10 410	.021 * Sig. .017 N 10 410	-.044 * Sig. .000 N 10 185	-.043 * Sig. .000 N 898 4	-.037 * Sig. .000 N 936 6	.134 * Sig. .000 N 10 241	-.060 * Sig. .000 N 10 288	.285 * Sig. .000 N 10 403	-.053 * Sig. .000 N 10 313	.329 * Sig. .000 N 10 406	.415 * Sig. .000 N 10 400						
Property Offences (14)	-.143 Sig. .000 N 10 914	-.107 * Sig. .000 N 10 914	.017 * Sig. .046 N 10 914	.054 * Sig. .000 N 10 185	-.068 * Sig. .000 N 931 4	-.083 * Sig. .000 N 978 2	.139 * Sig. .000 N 10 714	-.051 * Sig. .000 N 10 766	.465 * Sig. .000 N 10 875	-.168 * Sig. .000 N 10 574	.358 * Sig. .000 N 10 889	.553 * Sig. .000 N 10 889	.339 * Sig. .000 N 10 408					

Positive Interaction in Parenting (15)	-.003 Sig. .704 N 10 911	-.384 * Sig. .000 N 10 911	-.170 * Sig. .000 N 10 911	-.047 * Sig. .000 N 10 674	-.011 Sig. .278 N 932 0	-.009 Sig. .343 N 977 5	-.173 * Sig. .000 N 10 705	-.109 * Sig. .000 N 10 705	-.039 * Sig. .000 N 10 852	-.168 * Sig. .000 N 10 548	-.139 * Sig. .000 N 10 866	-.073 * Sig. .000 N 10 832	-.158 * Sig. .000 N 10 381	-.061 * Sig. .000 N 10 880				
Hostile/Ineffective Parenting (16)	-.095 * Sig. .000 N 10 859	-.048 * Sig. .000 N 10 859	-.026 * Sig. .000 N 10 859	-.000 Sig. .960 N 10 623	-.028 * Sig. .007 N 928 7	-.009 Sig. .350 N 973 5	-.205 * Sig. .000 N 10 661	-.053 * Sig. .000 N 10 713	-.431 * Sig. .000 N 10 809	-.219 * Sig. .000 N 10 510	-.371 * Sig. .000 N 10 820	-.450 * Sig. .000 N 10 787	-.312 * Sig. .000 N 10 346	-.410 * Sig. .000 N 10 831	-.199 * Sig. .000 N 10 858			
Consistent Parenting (17)	-.009 Sig. .307 N 10 825	.054 * Sig. .000 N 10 825	.050 * Sig. .000 N 10 825	-.170 * Sig. .000 N 10 589	-.128 * Sig. .000 N 926 9	.140 * Sig. .000 N 970 3	-.188 * Sig. .000 N 10 629	.133 * Sig. .000 N 10 683	-.191 * Sig. .000 N 10 778	.165 * Sig. .000 N 10 485	-.122 * Sig. .000 N 10 788	-.141 * Sig. .000 N 10 755	-.131 * Sig. .000 N 10 319	-.179 * Sig. .000 N 10 798	.079 * Sig. .000 N 10 824	-.263 * Sig. .000 N 10 813		
Punitive Parenting (18)	-.066 * Sig. .000 N 10 867	-.049 * Sig. .000 N 10 867	.070 * Sig. .000 N 10 867	-.051 * Sig. .000 N 10 631	.070 * Sig. .000 N 929 5	-.049 * Sig. .000 N 973 8	.233 * Sig. .000 N 10 667	-.107 * Sig. .000 N 10 719	.238 * Sig. .000 N 10 811	-.242 * Sig. .000 N 10 512	.177 * Sig. .000 N 10 826	.264 * Sig. .000 N 10 791	.163 * Sig. .000 N 10 347	.226 * Sig. .000 N 10 840	-.245 * Sig. .000 N 10 864	.510 * Sig. .000 N 10 840	-.181 * Sig. .000 N 10 867	
Adoption Status (19)	-.005 Sig. .599 N 903 6	.032 * Sig. .001 N 903 6	.058 * Sig. .000 N 903 6	.019 * Sig. .043 N 898 4	-.035 * Sig. .002 N 760 7	.024 * Sig. .010 N 903 4	-.004 * Sig. .010 N 903 4	.002 Sig. .827 N 886 9	.012 Sig. .213 N 877 8	.011 Sig. .243 N 855 2	-.007 Sig. .439 N 878 5	.014 Sig. .439 N 878 5	.018 Sig. .061 N 840 9	.023 Sig. .016 N 879 6	.015 Sig. .115 N 880 5	-.007 Sig. .437 N 876 9	.035 * Sig. .000 N 873 8	-.016 * Sig. .100 N 877 3

\*. Correlation is significant at the 0.05 level (2-tailed)

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## Appendix A

## Hyperactivity-Inattention Score (Age 4-11)

The items were responded to as follows:

- 1 – Never or not true
- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

1. How often would you say that "child's name" can't sit still, is restless or hyperactive?
2. How often would you say that "child's name" is distractible, has trouble sticking to any activity?
3. How often would you say that "child's name" fidgets?
4. How often would you say that "child's name" can't concentrate, can't pay attention for long?
5. How often would you say that "child's name" is impulsive, acts without thinking?
6. How often would you say that "child's name" has difficulty awaiting turn in games or groups?
7. How often would you say that "child's name" cannot settle to anything for more than a few moments?
8. How often would you say that "child's name" is inattentive?

## Prosocial Behavior Score (Age 4-11 Years)

The items were responded to as follows:

- 1 – Never or not true
- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

1. How often would you say that "child's name" shows sympathy to someone who has made a mistake?
2. How often would you say that "child's name" will try to help someone who has been hurt?

3. How often would you say that "child's name" volunteers to help clear up a mess someone else has made?
4. How often would you say that "child's name": If there is a quarrel of dispute, will try to stop it?
5. How often would you say that "child's name" offers to help other children (friend, brother, or sister) who are having difficulty with a task?
6. How often would you say that "child's name" spontaneously helps to pick up objects which another child has dropped (e.g. pencils, books, etc.)?
7. How often would you say that "child's name" will invite bystanders to join in a game?
8. How often would you say that "child's name" helps other children (friends, brother, or sister) who are feeling sick?
9. How often would you say that "child's name" takes the opportunity to praise the work of less able children?

#### Emotional Disorder – Anxiety Score (Age 4 – 11 Years)

The items were responded to as follows:

- 1 – Never or not true
- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

1. How often would you say that "child's name" seems to be unhappy, sad, or depressed?
2. How often would you say that "child's name" is not as happy as other children?
3. How often would you say that "child's name" is too fearful or anxious?
4. How often would you say that "child's name" is worried?
5. How often would you say that "child's name" cries a lot?
6. How often would you say that "child's name" appears miserable, unhappy, tearful, or distressed?
7. How often would you say that "child's name" is nervous, high strung, or tense?
8. How often would you say that "child's name" has trouble enjoying him or herself?

#### Conduct Disorder – Physical Aggression Score (Age 4 – 11 Years)

The items were responded to as follows:

- 1 – Never or not true

- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

1. How often would you say that "child's name" gets into fights?
2. How often would you say that "child's name": When another child accidentally hurts him/her (such as bumping into to him/her), assumes that the other child meant to do it, and then reacts with anger and fighting?
3. How often would you say that "child's name" physically attacks people?
4. How often would you say that "child's name" threatens people?
5. How often would you say that "child's name" is cruel, bullies, or is mean to others?
6. How often would you say that "child's name" kicks, bites, hits other children?

#### Indirect Aggression Score (Age 4 – 11 Years)

The items were responded to as follows:

- 1 – Never or not true
- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

1. How often would you say that "child's name": When mad at someone, tries to get others to dislike that person?
2. How often would you say that "child's name": When mad at someone, become friends with another as revenge?
3. How often would you say that "child's name": When mad at someone, says bad things behind the other's back?
4. How often would you say that "child's name": When mad at someone, says to others: let's not be with him/her?
5. How often would you say that "child's name": When mad at someone, tells the other one's secrets to a third person?

## Property Offences Score (Age 4 – 11 Years)

The items were responded to as follows:

- 1 – Never or not true
- 2 – Sometimes or somewhat true
- 3 – Often or very true
- 6 – Not applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not stated

- 1. How often would you say that "child's name" destroys his/her own things?
- 2. How often would you say that "child's name" steals at home?
- 3. How often would you say that "child's name" destroys things belonging to his/her family, or other children?
- 4. How often would you say that "child's name" tells lies or cheats?
- 5. How often would you say that "child's name" vandalizes?
- 6. How often would you say that "child's name" steals outside the home?

## Appendix B

### Positive Interaction Parenting (Age 2 – 11 Years)

The items were responded to as follows:

- 1 – Never
- 2 – About once a week or less
- 3 – A few times a week
- 4 – One or two times a day
- 5 – Many times each day
- 96 – Not applicable
- 97 – Don't know
- 98 – Refusal
- 99 – Not stated

1. How often do you praise "child's name" by saying something like "Good for you!" or "What a nice thing you did!" or "That's good going!"?
2. How often do you and he/she talk or play with each other, focusing on each other for five minutes or more, just for fun?
3. How often do you and he/she laugh together?
4. How often do you do something special with him/her that she/he enjoys?
5. How often do you play sports, hobbies or games with him/her?

### Hostile/Ineffective Parenting (Age 2 – 11 Years)

The items were responded to as follows:

- 1 – Never
- 2 – About once a week or less
- 3 – A few times a week
- 4 – One or two times a day
- 5 – Many times each day
- 96 – Not applicable
- 97 – Don't know
- 98 – Refusal
- 99 – Not stated

1. How often do you get annoyed with "child's name" for saying or doing something he/she is not supposed to?
2. Of all the times that you talk to "child's name" about his/her behavior, what proportion is praise?
3. Of all the times that you talk to him/her about his/her behavior, what proportion is disapproval?
4. How often do you get angry when you punish "child's name"?

5. How often do you think that the kind of punishment you give him/her depends on your mood?
6. How often do you feel you are having problems managing him/her in general?
7. How often do you have to discipline him/her repeatedly for the same thing?

#### Consistency in Parenting (Age 2 – 11 Years)

The items were responded to as follows:

- 1 – Never
- 2 – About once a week or less
- 3 – A few times a week
- 4 – One or two times a day
- 5 – Many times each day
- 96 – Not applicable
- 97 – Don't know
- 98 – Refusal
- 99 – Not stated

1. When you give him/her a command or order to do something, what proportion of the time do you make sure that he/she does it?
2. If you tell him/her, he/she will get punished if he/she doesn't stop doing something, and he/she keeps doing it, how often will you punish him/her?
3. How often does he/she get away with things that you feel should have been punished?
4. How often is he/she able to get out of a punishment when he/she really sets his/her mind to it?
5. How often when you discipline him/her, does he/she ignore the punishment?

#### Punitive/Aversive Parenting (Age 2 – 11 Years)

The items were responded to as follows:

- 1 – Always
- 2 – Often
- 3 – Sometimes
- 4 – Rarely
- 5 – Never
- 96 – Not applicable
- 97 – Don't know
- 98 – Refusal
- 99 – Not stated

1. When "child's name" breaks the rules or does things that he/she is not supposed to, how often do you: Raise your voice, scold or yell at him/her?
2. When "child's name" breaks the rules or does things that he/she is not supposed to, how often do you: Calmly discuss the problem?
3. When "child's name" breaks the rules or does things that he/she is not supposed to, how often do you: Use physical punishment?
4. When "child's name" breaks the rules or does things that he/she is not supposed to, how often do you: Describe alternative ways of behaving that are acceptable?

## Appendix C

### Family Functioning Scale

Each item was responded to in the following approach:

- 1 – Strongly Agree
- 2 – Agree
- 3 – Disagree
- 4 – Strongly Disagree
- 6 – Not Applicable
- 7 – Don't know
- 8 – Refusal
- 9 – Not Stated

- 1. Planning family activities is difficult because we misunderstand each other.
- 2. In times of crisis we can turn to each other for support.
- 3. We cannot talk to each other about sadness we feel.
- 4. Individuals (in the family) are accepted for what they are.
- 5. We avoid discussing our fears or concerns.
- 6. We express feelings to each other.
- 7. There are lots of bad feelings in our family.
- 8. We feel accepted for what we are.
- 9. Making decisions is a problem for our family.
- 10. We are able to make decisions about how to solve problems.
- 11. We don't get along well together.
- 12. We confide in each other.

### Social Support Scale

The following questions were responded to:

- 1. If something went wrong, no one would help me.
- 2. Do you strongly disagree, disagree, agree, or strongly agree with the following statement: I have family and friends who help me feel safe, secure and happy.
- 3. Do you strongly disagree, disagree, agree, or strongly agree with the following statement: There is someone I trust whom I would turn to for advice if I were having problems.
- 4. Do you strongly disagree, disagree, agree, or strongly agree with the following statement: There is no one I feel comfortable talking about problems with.



5. Do you strongly disagree, disagree, agree, or strongly agree with the following statement: I lack a feeling of closeness with another person.

6. Do you strongly disagree, disagree, agree, or strongly agree with the following statement: There are people I can count on in an emergency.