

EFFECTS OF A COMMUNITY OUTREACH POST-PERMANENCY PROGRAM ON
BEHAVIOR PROBLEMS AND PLACEMENT STABILITY OF YOUTH IN
ADOPTIVE/GUARDIANSHIP ARRANGEMENTS

BY

MINLI LIAO

DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Social Work
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2014

Urbana, Illinois

Doctoral Committee:

Associate Professor Mary Keegan Eamon, Chair
Associate Professor Chi-Fang Wu
Director Tamara Fuller
Associate Professor Jennifer Hardesty
Spears-Turner Distinguished Professor Mark F. Testa

ABSTRACT

As an increasing number of foster children achieve permanency through adoption or legal guardianship, identifying effective interventions or services to assist them in transitioning into positive post-permanency adjustment is a pressing topic in child welfare research. However, current knowledge about the effectiveness of interventions for this population is inadequate, because of various design, analysis, and measurement limitations of previous evaluation studies. To address some of these limitations, this study used an intention-to-treat (ITT) analysis, a treatment-on-treated (TOT) analysis, and structural equation modeling (SEM) to examine the effectiveness of the Illinois Adoption Preservation, Assessment, and Linkage (APAL) program. The APAL program is a community outreach post-permanency service provided to families with older children who were adopted or taken into guardianship. The program provides a needs assessment and referral and informational services, which aim to address service needs and prevent youth's out-of-home placement. Three hypotheses were tested related to (1) examining the impact of the APAL program assignment and receipt on youth behavior problems, caregivers' commitment, and out-of-home placement; and (2) identifying the mediating effects of provider contact, perceived demands of youth care or needs, and unmet service needs that link assignment to the intervention to youth behavior problems and caregiver commitment.

The study analyzed data from the Illinois Post-Permanency Round II (PP-II) Survey which used a quasi-experimental design with a six-month follow-up (N = 439). The families in the intervention group were expected to receive the APAL services, whereas families in the comparison group were expected to receive regular post-permanency services. To investigate the effect of APAL program assignment on the outcomes, an ITT analysis was used; to detect the effect of receiving the APAL program on the outcomes, a TOT analysis was used. In the ITT and

TOT analyses, depending on the outcome, either a multivariate OLS regression or logistic regression was estimated. SEM was used to shed light on the processes through which the APAL program was effective.

Results of the multivariate analyses suggest that the APAL program can reduce youth externalizing behaviors and increase caregivers' commitment to the youth. Participants assigned to the APAL group had an average of 1.30 lower externalizing behavior scores (effect size = -.23) and an average of .98 higher caregivers' commitment scores (effect size = .24) than participants in the comparison group. Those who actually received the APAL intervention had an average of 1.36 lower scores on externalizing behavior (effect size = -.28), and exhibited an average of .87 higher caregiver commitment scores (effect size = .28), compared to those who did not receive the program. Because of the low frequency of youth placed out of home, whether the APAL program prevented such placements could not be determined. Results of the SEM indicate that service provider contacts can assist in reducing caregivers' perceived demands of youth care or needs, which in turn leads to fewer behavior problems and enhanced caregiver commitment.

Although the current study was not based on an experimental design, the findings have implications for social work practice, program evaluation, child welfare policy, and agencies to improve the lives of children and families in the life-long adoption/guardianship process.

ACKNOWLEDGEMENTS

The dissertation stage was the most challenging, yet the most fulfilling, part of my doctoral program. I would like to express my deepest gratitude to my committee members, my professors, and family and friends who provided tremendous support and love to me and assisted in making my journey smooth and fulfilling.

First, I am deeply and earnestly grateful to my dissertation chair and advisor, Dr. Mary K. Eamon. I have always been moved by and grateful for her willingness and selflessness to serve as my dissertation chair when I had to switch to a new chair at a late stage in my doctoral studies. Her organized work style and unconditional support were essential for me to meet the timeline and successfully finish my dissertation. I am especially impressed by her persistence and sharp eyes, and am much indebted to her efforts and time in reading and commenting on numerous drafts of my dissertation. I am also heartedly thankful to my former advisor, Dr. Mark F. Testa, who introduced me to the PP-II Survey before he left for the University of North Carolina and guided me to the correct direction throughout the dissertation. His skills of viewing issues broadly and his attitude toward rigorous research set up a good model for me. Dr. Chi-Fang Wu contributed her assistance and expertise in program evaluation to my dissertation. I am grateful for her suggestion to categorize the outcome studies by the outcome variables. I would also like to thank Dr. Tamara Fuller, who generously provided me with financial and intellectual support at the Children and Family Research Center. Without the job opportunity in the center, I might not have been able to complete the internship for my MSW degree. I am grateful to Dr. Jennifer Hardesty for providing suggestions for strengthening the theoretical part of my dissertation. Her Family Theories class was one of the best courses I took at the University.

I would like to express special thanks to Dr. Steve Anderson and Dr. Min Zhan. Dr. Anderson was the former PhD program director who provided me with enormous emotional support and guidance when I struggled over the adjustment of life and study during the early stage of the doctoral program. I am grateful for his generosity, encouragement, and support. I would also like to thank Dr. Min Zhan, the current PhD program director, who is always a reliable mentor to provide guidance and offer insightful suggestions. I am very blessed to have made many good friends at the School, Saijun Zhang, Chennan Liu, Jun Sung Hong, Seonmi Kim, Meirong Liu, and Naftali Ng'ondi. They have brought warmth and positive energy to my life, without which the 6 year journey would have been less joyful and more hazing.

I am grateful to my parents for their love and patience. They unconditionally supported me on every decision I have made and never doubted my talents and ability to fulfill any tasks. Finally, I would like to thank my husband, Ligang Chen, who has been my strongest cheerleader and trustworthy partner with whom I share bliss, laughter, and bitter. His wisdom on life and persistent encouragement inspire and guide me to become the person who I want to be!

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
Differentiations of Disruption, Dissolution, and Out-of-home Placement	2
The Current Study	4
Overview of the Dissertation	5
CHAPTER 2: LITERATURE REVIEW	6
Factors Influencing Post-Permanency Adjustment	6
Program Evaluations of Post-Permanency Services	23
Purpose and Significance of the Current Study	31
CHAPTER 3: RESEARCH METHODOLOGY	33
Overview	33
Research Hypotheses	35
Intervention Description, Research Design, Population and Sample	37
Research Data	43
Implementation Integrity Assessment	45
Measures	50
Missing Data Analysis	58
Methods of Analysis	59
CHAPTER 4: RESULTS	63
Descriptive Statistics	63
Multivariate Regression Analysis	68
SEM Analysis	79
CHAPTER 5: DISCUSSION	88
Summary of the Findings	88
Discussion	90
Limitations of the Study	97
Implications	99
Future Research	103
Summary and Contributions	105
REFERENCES	108
APPENDIX A	118
APPENDIX B	121

CHAPTER 1

INTRODUCTION

Recent developments in child welfare policies direct states to place considerable efforts on achieving timely permanency for children placed out of home. Since the passage of the Adoption and Safe Families Act (ASFA) in 1997, many states have succeeded in accelerating permanency placements for foster care children through adoption or legal guardianship, which aims to attain the ultimate goal in child welfare—promote children’s well-being. It is estimated that about 50,000 children were adopted from public child welfare agencies nationwide during fiscal year 2011 (U.S. Department of Health and Human Services [DHHS], 2011), a 35% increase over the 37,000 children adopted in 1996 since before the passage of the ASFA. In addition, nearly 15,000 children were taken into guardianship (U.S. DHHS, 2011), a dramatic 166% increase from 10 years before. In the State of Illinois, in July of 2000, the number of children in subsidized adoptive and guardianship placements surpassed the number of children in foster care for the first time (Testa, 2004). A similar crossover had occurred in the states of Michigan, Missouri, New Jersey, and New York (Barth, Wulczyn, & Crea, 2005).

Achieving adoptive or guardianship is not an end but a starting point in the child’s journey, as the new goal is to maintain the placement stability. The post-placement stage is a lifelong process which is fraught with challenges, difficulties, and struggles resulting from parenting burden, financial shortage, and lack of social supports (Barth & Miller, 2000; Berry, Propp, & Martens, 2006; Festinger, 2002; Howard & Smith, 2003). In addition, foster care children’s problems are not automatically cured and likely will be carried over to the post-permanency stage. Most of all, post-permanency service needs increase as children develop into adolescents because problems hidden at a young age might surface, which can tax family

resources tremendously (Reilly & Platz, 2003). Research consistently reports that approximately 1 to 10% of children placed in post-permanency homes are returned to foster care (Child Welfare Information Gateway [CWIG], 2005a), and the number for special needs adoptions might be higher. Adopted children, especially those adopted from foster care or with special needs, are at risk of placement instability and therefore in need of specialized, ongoing support and services. Given that the number of this population is increasing, identifying effective post-permanency programs to assist families in weathering the challenges is essential to preserve children's placements.

The Illinois Department of Children and Family Services (IDCFS) has been concerned about and has responded to the post-permanency service needs of families in the post-permanency stage. The department created a community outreach post-permanency program called Adoption Preservation, Assessment and Linkage (APAL) to address families' needs and help them overcome difficulties approximately 8 years after adoption or legal guardianship was finalized. The intervention is a needs assessment and referral and informational services provided to families caring for older children and aims to prevent children's out-of-home placement (see Chapter 3 for a detailed description of this program).

Differentiations of Disruption, Dissolution, and Out-of-home Placement

Before I provide the overview of my study, I disentangle important concepts which might create confusion in evaluating the post-permanency program. Previous studies have identified that one of the difficulties in determining the factors associated with adoption adjustment and hindering the evaluations of post-permanency services is the lack of consensus on terminology to describe adoption outcomes (CWIG, 2005b; Festinger, 2002). "Failed adoption" is a retired word due to the pathological connotation it brings to the child and family who have tried their best to

establish a new tie. The widely used nomenclatures measuring adoption outcomes are “disruption” and “dissolution,” yet there is still a large discrepancy in the meanings of these two words (see Coakley & Berrick, 2008).

Adoption laws and policies in some states mandate that a child must be placed in a prospective adoptive family for a period of time to assess the placement fitness before adoption legalization (CWIG, 2012). In the period after the child has been placed in the adoptive family, many pre-legalization relinquishments occur. Disruption frequently refers to an adoption that ends after the child has been placed in the family and before the adoption is legally finalized, leading to the child’s return to or re-entry into foster care (Festinger, 2002). Although there is no national data on the number of disruptions, it is estimated that about 10 to 25% of adoptions disrupt prior to adoption finalization (CWIG, 2005a).

Dissolution refers to an adoption that ends after the adoption has been legally finalized, resulting in the child’s re-entry into foster care and the termination of the adoptive parents’ legal custody (Festinger, 2002). It is difficult to track the dissolution rate as the child’s case is closed after they have been adopted. Existing studies show dissolution is rare, and approximately 1 to 10% of adoptions dissolve (CWIG, 2005a). Cases in which adopted children or children taken into guardianship are placed out of home after finalization, including foster home, residential care, group home, or inpatient psychiatric hospitals, but it does not necessitate termination of parental rights (TPR), are considered as out-of-home placements in this study¹. Out-of-home placement is one of the outcomes that I used to measure the APAL program effects. The difference between dissolution used in previous studies and out-of-home placement used in the current study is that the former includes cases in which parental rights have been terminated. On

¹ There might be other reasons that result in children’s re-entry into foster care besides dissolution, which is sometimes also referred to as displacements (Goerge, Howard, Yu, & Radomsky, 1997).

the other hand, out-of-home-placement consists of children whose parents or guardians might or might not maintain legal custody depending on whether the out-of-home placement is temporary or permanent. In other words, out-of-home placement implies a broader meaning than dissolution.

The Current Study

This study uses a secondary data analysis collected by a quasi-experimental program evaluation and intends to (1) assess the effects of the APAL program in reducing children's behavior problem, promoting caregivers' commitment to the child, and preventing children's out-of-home placement, (2) determine the mechanisms through which the program achieves these outcomes². By applying the ecological systems theory, I examine the effects of the post-permanency program on adoption adjustment while simultaneously taking into account the influences of other ecological systems on the child. In addition, family stress-coping theory is incorporated into the study to investigate the mediating role of service provider contacts, formal social support, and caregivers' perceptions of parenting demands that lead to adoption outcomes. First, I hypothesize that the assignment to and the receipt of the APAL program would improve children's behavior problems, increase caregivers' commitment, and promote placement stability, Second, I hypothesize that the effects of APAL assignment on the outcomes would be mediated through the service provider contact, a reduction in unmet service needs, and a decrease of caregivers' perceived demands of youth care. A treatment-on-treated and an intention-to-treat analysis are used to test the relationships in the first hypothesis, and structural equation modeling is conducted to test the relationships in the second hypothesis. Compared to other studies in post-permanency program evaluations, this study uses a more rigorous design

² Note that this study is not the official evaluation of the APAL program, and is not intended to evaluate the APAL's effectiveness based on the program's original proposed outcomes. The study is a secondary data analysis which aims to develop and test several different research hypotheses.

consisting of a comparison group and a six-month follow-up and applies advanced statistical analysis to detect the APAL program effect.

Overview of the Dissertation

This dissertation includes five chapters. Chapter 2 outlines the theoretical framework of the study as well as relevant theories interwoven within the framework to broadly examine factors influencing post-permanency adjustment. This chapter also systematically reviews previous post-permanency program evaluations. In chapter 3, I explain the research methodology used to assess the APAL program effects, including the research hypotheses; intervention description, research design, population and sample; an implementation integrity assessment; missing data analysis; and statistical methods. Chapter 4 provides and compares the results of the APAL program impacts on the outcomes under the intent-to-treat and treatment-on-treated analysis, respectively. In addition, the results of the structural equation model that tested the mediating effects through which the APAL program leads to the outcomes are presented. Chapter 5 lays out conclusions and discussions of the research findings, limitations, implications, and directions for future research. The study's contributions to post-permanency program evaluation research and service implementation are also highlighted in this chapter.

CHAPTER 2

LITERATURE REVIEW

The literature review in this chapter focuses on two research areas. The first main section addresses factors that influence post-permanency adjustment and outcomes. Ecological systems theory is used as an overarching framework to organize and categorize related research into the levels of socio-demographic factors, microsystems, mesosystems, exosystems, macrosystems, and chronosystems. Relevant theories interwoven within each system are introduced correspondingly, and are used to understand how these factors exert impacts on adoption outcomes. The second major section reviews research on program evaluations of post-permanency services. This section begins with an introduction of service needs and unmet needs in the post-permanency area and follows with a review of various post-permanency programs according to their outcomes. The summary and limitations of existing studies are provided within each of the two main sections. Finally, I introduce the purpose and significance of my current study and explain how it addresses the knowledge gap in post-permanency research.

Factors Influencing Post-Permanency Adjustment

Theoretical Framework

An ecological systems analysis is a broad approach to understanding the theoretical conceptions of the environment that underlie human development (Bronfenbrenner, 1977; Bronfenbrenner & Ceci, 1994). In this perspective, child development can be viewed as “processes of progressively more complex reciprocal interaction” (Bronfenbrenner & Ceci, 1994, p. 572) between a developing human being and the changing environments in which she or he resides. The mutual accommodations embodied in the developmental processes are not only influenced by the relations obtaining within and between the immediate settings, but also

affected by the broader social environments in which all the relations and the developing person are embedded. The innovation of the ecological systems analysis lies in the perspective of dynamic processes and the concept of reciprocity. The ecological perspective also extends the interactions to a broader social context including the socio-economic and political factors, which brings in a critical and historical perspective to the framework. The framework therefore is also referred to as a process-context model, which assesses the impact of external environments on the person's developing processes.

Bronfenbrenner and Ceci (1994) proposed the *bioecological model* to delineate how genetic material interacts with environmental factors in shaping developmental outcomes. They recognize that the child's own biology is a primary factor facilitating his/her development, and the impact of the external environment on the person can have different outcomes depending upon individual characteristics. The genetic potentials for development are not passive but active in "patterns of selective attention, action, and differential response" (Bronfenbrenner & Ceci, 1994, p. 580). The processes and mechanisms through which genetic potentials for effective psychological functioning are actualized are called *proximal processes* (Bronfenbrenner & Ceci, 1994). Proximal processes are described as the primary engines of effective development through which genotypes are transformed into phenotypes. The actualization of genetic potentials for developmental competence does not occur at once, but across a life time. After incorporating the individual and time component, the framework was refined as the process-person-context-time model (PPCT) (Bronfenbrenner, 1999).

The ecological environments are conceived as nested structures in which changes or conflicts in one level will lead to a ripple effect on others. The innermost ecological environment affecting the developing child is the microsystem, which consists of an array of relations

between the developing person and the immediate environment containing the person. The other ecological environmental components based on the proximal distance from the developing person include mesosystems (interrelations between immediate environments, both containing the developing person), exosystems (processes between two or more systems, but only one contains the developing person), macrosystems (overarching institutional patterns of the culture or subculture), and chronosystems (the patterning of environmental events and transitions over the life course) (Bronfenbrenner, 1977, 1986). The distant environment within the ecological system influencing the developing youth works through its effects on proximal contexts and processes.

Adjustment to adoption or guardianship is a complicated process which involves the interactions among children, adoptive parents/legal guardians, and the child welfare system. Bronfenbrenner's (1977, 1986, 1999) ecological systems analysis in this sense is a suitable framework for reviewing the related factors influencing adoption adjustment outcomes. In this section, I will examine the related factors contributing to adoption adjustment within each system level of the ecological environment. Relevant theories interwoven within each system are also introduced to understand how those factors lead to post-permanency adjustment for children, youth, and their families. Since the adoption adjustment process is multifaceted and the dynamic is evolving in different developmental stages, the outcomes examined in this review are broad and include adoption disruption/dissolution/out-of-home placement, family functioning, and children's well-being.

Socio-Demographic Factors

Child characteristics. Bronfenbrenner (1986, 1999) posited that children's characteristics, whether genetically or environmentally determined, are the basis upon which

proximal processes take effect. Studies have identified a set of children's socio-demographic characteristics which have impacts on their adjustment after adoption placement. Children's age is consistently reported as one of the strongest socio-demographic predictors of adoption disruption/dissolution. Older children who enter foster care later in their lives are at greater risk of disruption as they tend to live a longer period in the malfunctioning family, experience more placements in out-of-home care, and/or develop deeper attachments with their birth parents (Barth, Berry, Yoshikami, Goodfield, & Carson, 1988; Festinger, 2002; McDonald, Propp, & Murphy, 2001; Webster, Barth, & Needell, 2000). Male children are more likely to experience placement instabilities than their female counterparts (Smith, Garnier, Howard, & Ryan, 2006; Webster et al., 2000). Studies have demonstrated inconsistent relationships between race/ethnicity and placement outcomes. For example, some research demonstrates that compared to African American children, White children are less likely to experience disruption (Smith et al., 2006); but other studies indicate that African American children are much less likely than White children to experience placement instability (Webster et al., 2000). Longitudinal analysis establishes a profound linkage between multiple previous placements and an increased likelihood of subsequent moves in long-term care (Webster et al., 2000).

Children with physical, mental, and/or emotional disabilities have been consistently reported to be at greater risk of dissolution or disruption, and externalizing behaviors in particular lead to disruption (Barth & Berry, 1988; Leung & Erich, 2002; Smith et al., 2006). A good pre-adoption functioning in behavioral, emotional, and educational areas significantly leads to a positive post-adoption adjustment (Goldman & Ryan, 2011). Sibling group adoption manifests a mixed picture. Leung and Erich (2002) reported that sibling adoption was the most critical risk factor resulting in lower family functioning, despite the finding that sibling adoption

improved children's post-adoptive externalizing behaviors. Another study revealed that adoptive placements having one to three siblings of the child tend to result in disruption, compared to families who do not adopt a sibling. However, the risk of disruption actually decreased when families adopted four or more siblings of the child (Smith et al., 2006).

Family characteristics. Studies have established links between a variety of family characteristics and adoption adjustment outcomes. Adoption by strangers, as opposed to foster care adoption, and by families lacking experience caring for children with disabilities increase the risk of disruption (Barth & Berry, 1988). The higher expectation the parents have, which is also correlated with higher educational levels, especially the mother's, and the higher the family income, the more likely disruption or dissolution will occur (Haugaard & Hazan, 2003; McDonald et al., 2001). Mothers' regular attendance at religious activities can serve as a protective factor that can increase positive family functioning, as they more frequently receive social support from other adoptive parents (Erich & Leung, 1998).

Married adoptive parents tend to report more positive adjustment than do single parents (McDonald et al., 2001), probably because caregivers receive more emotional support from their spouses/partners. Research also shows that the relations between child or family characteristics and disruption/dissolution may vary by kinship and non-kinship care. For example, Howard and Smith (2003) found that kin adoptive parents were less likely to report troubles of their children and were more satisfied with adoption than foster care adoptive parents or matched adoptive parents. Children being placed with relatives are at lower risks for dissolution even after correcting for auto-correlated cases where siblings reside in the same family (Smith et al., 2006). These findings might be explained by relatives being more tolerant of difficulties their children are having, more accepting of the children as they are, and less likely to demand more from them

(Howard & Smith, 2003). However, the relation between kinship status and adoption outcomes might be confounded by race characteristics, because ethnic minority children are about twice as likely as White children to be placed with kin (Hill, 2006). Therefore, it is still unknown whether the difference in adoption outcomes is attributed to the characteristics of ethnic minority culture or the type of placement itself.

Microsystems

Microsystems are comprised of immediate settings containing the developing person in which the participant engages in particular activities most of the time. These settings include the developing person's family, peers, school, and neighborhood. The home setting is the most important immediate environment for the adopted child as it is the place in which he/she spends the most time. Proximal processes exert their strongest impact on adoption adjustment outcomes within the home. The theory which is commonly applied to explaining adoption adjustment within the microsystem of the family is family stress-coping theory.

Family stress-coping theory. McCubbin and Patterson (1983) proposed the Double ABCX model based on Hill's ABCX family crisis model to explain the process of family stress by integrating post-crisis variables. A stressor is a life event or transition which potentially changes the family unit, whereas family stress is a state in which the family unit feels the imbalance of demand-capabilities in the family's functioning (Boss, 2002; McCubbin & Patterson, 1983). As the family evolves over time, stressors (aA factor) from individual family members and the family system, both of which experience normative and non-normative transitions, can easily pile up. The family capitalizes on available and expanded resources and capabilities (bB factor) as family resilient factors to cope with the stressors. Meanwhile, the

family generates meaning (cC factor) to interpret the current situation and appraise the level of stress and capability to manage the stress (Patterson, 2002; McCubbin & Patterson, 1983).

In cases where families are able to balance the demands facing them, they can achieve a positive level of family adjustment (xX factor), such as achieving successful family functioning and preventing out-of-home placement. However, when demands exceed their coping resources, families experience maladjustment and crisis (xX factor), such as adoption disruption and dissolution. The Double ABCX model proposes that family adjustment processes involve interactions among resources, perception, and behaviors in which the path from demands to adjustment outcomes is mediated through coping resources and family meaning. Boss (2002) emphasized that because family stressors and capabilities emerge from the ecosystems of the individual, family, and community levels, independently or interactively, it is necessary to examine the process of family stress and coping within the contexts in which the family resides.

Researchers began to apply the stress and coping model to understand children's and family's adoption adjustment in the early 1990s (Berry, 1990; Brodzinsky, 1990). As adoption is considered to be a stressful event for post-permanency families, the model is appropriate for explaining how a family achieves adoption adjustment by applying various cognitive-appraisal processes and coping efforts. Brodzinsky (1990) argued that the risk factors embedded in children's pre-natal and post-natal environments lead to most of the stressors. Vulnerable children adopted from the public child welfare system experience separation/loss and grief (Smith, Howard, & Monroe, 2000), abuse or neglect in foster care (Barth & Berry, 1987), identity and search issues (Hoopes, 1990; Schechter & Bertocci, 1990), behavior problems (Smith et al., 2000), and/or Post Traumatic Stress Disorder (PTSD) resulting from maltreatment (Clark, Thigpen, & Yates, 2006). Adopted children also present more psychological problems

than non-adopted children when they attempt to integrate into a new family and learn a new role of a child or a sibling (Berry & Barth, 1989; Brodzinsky, 1987).

Parenting adoptees with special needs or trauma is stressful. Child behavior problems and demands of caring are the most frequently expressed concerns by adoptive parents (Gibbs, Barth, & Houts, 2005; Lenerz, Gibbs, & Barth, 2006). A survey of 249 families adopting children with special needs showed that children's behavior problems are negatively associated with parental satisfaction with adoption (Reilly & Platz, 2003). An interview with 58 parents adopting adolescents indicated that youth's behavior problems are the major factor resulting in negative impacts on parents' lives. Almost half of these parents experience stress, tension, and emotional drain as a result of adolescents' negative behaviors (Wright & Flynn, 2006). Post-adoption service needs might be a good proxy to gauge the severity of children's behavior problems, as Festinger (2006) found that the number of service needs is strongly associated with more children's problems. Therefore, families' service needs is another predictor related with adoption outcomes.

The availability of coping resources for adoptive families is directly related to family adjustment, as these coping strategies can buffer parenting stress (Crnic, Friedrich, & Greenberg, 1983). Coping can be viewed as a process through which a family unit can either facilitate or impede a successful adjustment outcome (Brodzinsky, 1990). Brodzinsky classified coping strategies into two forms. Problem-focused coping strategies are characterized by applying parents' problem solving skills to mitigate the problem and cause, whereas emotion-focused coping strategies attempt to regulate emotional response to alleviate the level of stress by using such means as avoidance, minimization, selective attention, and positive comparison. Parents' active applications of problem-focused coping strategies contribute to a higher family

functioning. For example, a study with 500 adoptive families showed that seeking excessive social support from family members and other adoptive parents directly lead to family integrity and cohesion (Atkinson & Gonet, 2007). Emotion-focused coping skills used by caregivers are also effective in resulting in positive adoption outcomes. An interview of adoptive parents' experiences showed that parents' unconditional love and emotional relatedness with their children are important reasons explaining successful adoption (Wright & Flynn, 2006).

In addition to coping capabilities, a family's perception or appraisal of stressful events is another important mediator determining whether the family can achieve a satisfactory adoption outcome (Boss, 2002). A transactional approach viewing the interactions among stress, family perceptions, and adjustment as a reciprocal process is conducive to understanding the role of perceptions in linking stresses and outcomes (Viana & Welsh, 2010). In a study of integrating adopted children with special needs into the family, parents stressed the importance of affirming children's competency in improving their functioning and positively attributing these outcomes to the parents' efforts. The study also suggested that parental perceptions of children's behavior problems have a greater impact on adoption outcomes than children's behavior problems per se (Clark et al., 2006). In another study of 143 internationally adopting mothers, Viana and Welsh (2010) reported that higher perceived social support from family and friend significantly predicts lower parenting stress six months post-adoption. These adoption studies suggest that parents' perceptions and cognitions can have a large impact on adoption outcomes than might be expected. In face of stressors, if parents assume an adaptive mental mechanism, the stressor tends to pose less negative impact on them. Similarly, if parents perceive more social support, this perception assists them in building a positive mental mechanism, which contributes to a desirable adoption outcome. Studies on general families with disabled children confirm that a

positive appraisal of childhood disability and perceptions of lower caregiving demands lead to early/sooner family adjustment, enhanced parental self-esteem, and higher family resiliency (Trute, Hiebert-Murphy, & Levine, 2007). On the other hand, perceived higher parenting stress is a strong predictor of increases in caregivers' reports of child behavior problems in a four-year longitudinal study (Deater-Deckard, Pinkerton, & Scarr, 1996). Yet no studies have explored the relation between perceived demands of adoptive youth care or needs and their adoption outcomes.

Mesosystems

Mesosystems embody the interrelations between two or more settings, both of which contain the developing person. For an adopted child or a child taken into guardianship, mesosystems consist of interactions among the post-permanency family, birth family, school, and peer group. Children's experiences in one microsystem, such as the family, may influence activities and interactions in another setting, such as the peer group, or vice versa (Eamon, 2001).

Adoptive family boundary ambiguity. Adopted children's interactions or experiences with their birth parents can impact their interactions with their adoptive parents. For example, children who are removed from their birthparents may have difficulty in developing a sense of security or closeness, making it difficult for them to interact with their adoptive parents (Johnson & Fein, 1991). Derdeyn and Graves (1998) also found an adopted child's abandon anxiety might be manifested as anger, which could be directed toward the adoptive parents. In cases of open adoptions where adoptive parents and birthparents are allowed to meet and exchange identifying information (Baran & Pannor, 1990), the interactions between the two microsystems are more frequent.

The construct of family boundary ambiguity derived from family systems theory is useful in understanding these interactions. Family boundary ambiguity is a state of uncertainty with regard to who is in or out of the family and who is performing what roles and tasks within the family system (Boss & Greenberg, 1984). Two types of high boundary ambiguity are proposed: physical absence with psychological presence (i.e., a family member is physically absent but perceived as psychologically present), and physical presence with psychological absence (i.e., the family is physically intact, but one member is emotionally unavailable to the family system) (Boss, 2002).

Referring to the Double ABCX Model, the way the child and adoptive parents handle boundary issues is related to how they perceive and appraise the level of adoption pressure (cC factor). From the adopted children's viewpoint, prolonged contact and emotional bonds with their birthparents produce a psychological sense of their continued presence accompanied by a distressing awareness of their physical absence. Smith and Howard (1991) found children having a strong connection to their birth mothers are more likely to experience unhealthy parent-child interactions and disruptive adoptions than those children who did not have such a connection. For the adoptive parents, prolonged ambiguity can add stress to the family system, as they feel less in control and less secure in the psychological presence of a birthparent (Ge, et al., 2008). In cases where children desire to reunify with birthparents, children's physical presence with psychological absence hinders them from adapting to a new family life in time, which is harmful for family cohesion. Wright and Flynn's (2006) study indicates that parents adopting special needs children would consider disruption when the children fail to bond with them, or they want to leave the family.

Despite the challenges accompanying open adoption, some studies have shown that few adjustment differences exist between the two groups of children. Although research findings might be confounded by the length of time since placement (Ge, et al., 2008), a growing body of studies supports that the collaborative involvement between the two family systems is conducive to children's development and well-being (Brodzinsky, 2006; Grotevant, Ross, Marchel, & McRoy, 1999). Research using more rigorous methods to compare the impact of open adoption versus other types of adoption (e.g., closed adoption, guardianship) on children's adjustment outcome is imperative.

Exosystems

Exosystems comprise the interrelations between two or more settings that can affect the developing person, but only one setting contains that person (Bronfenbrenner & Ceci, 1994). An example of an exosystem influencing adoption adjustment frequently found in the adoption literature is the adoptive parents' formal and informal social support networks. Interactions in one of these settings in which the social support is received can affect adopted children in another setting such as the home.

Social support theory. Social support theory proposes that the structural and functional aspects of social support are considered as coping resources that can mediate between stress and family functioning and child resiliency (Armstrong, Birnie-Lefcovitch, & Ungar, 2005). Social support represents the bB factor in the Double ABCX model because it consists of the available resources that families can rely on to manage the stress associated with adoption adjustment. The direct or main effects model of social support theory postulates that social support exerts its influence on people's psychological well-being regardless of the level of stress individuals have (Kessler & Essex, 1982), whereas the buffering model hypothesizes that social support will

protect individuals having high levels of stress from negative consequences of stressful events (Henderson, 1980). A strong social support network available to adoptive families is helpful in mitigating parenting stress, enhancing coping abilities, and contributing to healthy family functioning (Barth & Berry, 1988; Groze, 1996; Zosky, Howard, Smith, Howard, & Shelvin, 2005). Families' social support networks are comprised of informal and formal social support. Informal support systems consist of caregivers' indigenous support networks of family members, close friends, neighbors, or personal acquaintances, as well as peers such as other adoptive parents and foster parents. Having a supportive spouse or partner is widely acknowledged as the most important form of social support, as a supportive partner is vital to providing emotional support, communication, and concrete aid (Perry & Henry, 2009). Leung and Erich (2002) showed that support from a spouse or a partner and other parents of adoptive children are positively associated with healthy family functioning. A good quality or a high level of support from relatives or friends also helps alleviate parenting stress, and thereby prevents adoption disruption/dissolution (Barth & Berry, 1988).

Formal support networks include formal agency support, such as post-permanency services, and trained professionals not affiliated with the adoption agency, such as school teachers, therapists, and medical providers (Kramer & Houston, 1998). Reilly and Platz (2004) revealed that parents who received financial supports and other post-adoption services were more likely to be satisfied with parenting than those who did not. Parents in Wright and Flynn's (2006) study mentioned that supports from professional services such as training or counseling improved family functioning. Empirical evidence also indicates that families who kept in contact with the adoption agency tended to remain more stable as this contact eases adjustment difficulties (Barth & Berry, 1988). These findings were confirmed by a longitudinal study

following adoptive families over three years. Houston and Kramer (2008) found that the higher the level of contact with a formal agency the families maintained, the more likely the families were able to stabilize their adopted children in their homes and advance legal finalization. They also found the more satisfied parents felt with the post-adoption services, the less family conflict they experienced, and parents tended to choose to adopt again (Houston & Kramer, 2008).

Macrosystems

Macrosystems refer to the overarching institutional patterns of a given culture or subculture, which include the belief systems, customs, lifestyles, opportunity structures, and hazards that are embedded in these systems. Bronfenbrenner and Ceci (1994) considered the macrosystem as a societal blueprint for a particular culture or subculture. Ecological systems theory postulates that societal views on adoption and legal guardianship and related child welfare policies and laws influence family and children's adoption/guardianship adjustment and post-permanency placement stability. This influence is due to adoptive families not experiencing stress or crisis (aA factor) in a vacuum, and the way that society views the placement directly or indirectly impacts the level of stress families encounter.

Adoption has a long history in U.S. child welfare practice, and until recently was the only federal subsidized option for achieving permanency. The passage of the Adoption Assistance and Child Welfare Act (AACWA) legally established adoption as the permanency option for children who cannot be reunified with their parents. Adoption necessitates the termination of biological parental rights, thus adoption can best guarantee a permanent place for the child, and is believed to be the next best choice to achieve permanency (Barth & Berry, 1988). However, due to the benefits of maintaining familial and cultural ties and the unavailability of enough licensable foster homes, legal guardianship has become a promising permanency option for kin who do not

want to pursue adoption, or for children who would be better off if they were not adopted (Testa, 2004).

Unlike adoption, legal guardianship creates a legally lasting rather than binding relationship between the guardian and the child, but does not necessitate the termination of biological parental rights. Therefore, it is assumed that in guardianship, birth parents could possibly regain the child if they fulfill the court's requirement to be a fit parent; and in this sense, guardianship could be easily discontinued and result in placement instability for the child. Society might also fear that due to parents' residual rights, birth parents could easily intervene in children's lives, which might expose children to a risk of re-abuse and re-neglect and hamper their development (Testa, 2002). For these reasons, legal guardianship is perceived as an alternative choice only when adoption is deemed as inappropriate or unavailable. Although legal guardianship was recognized as a permanency option after the passage of AACWA in 1980, the legislation did not provide financial assistance to legal guardians until 1997 when states received the title IV-E funds to implement subsidized guardianship demonstrations.

A study that compared the placement stability between adoption and guardianship after the passage of ASFA in the State of Illinois demonstrated no difference in the dissolution rate between the two (Testa, 2004). Although there was no variation in out-of-home placement between the two types of post-permanency strategies in another study, subsidized guardians were more likely to raise dissolution as an option into post placement than adoptive parents (Howard, Smith, Zosky, & Woodman, 2006). Given that few studies have examined the stability of guardianships, more research is needed to understand and compare the outcomes of different post-permanency options.

Chronosystems

Chronosystems incorporate the time element as a property of both the developing person and the surrounding environment, over the life course and across historical time. Chronosystems consist of cumulative effects of change or consistency over time on the adoptive child, as well as of the environment in which he/she lives (Bronfenbrenner & Ceci, 1994). An example of a chronosystem influencing adoption adjustment is the adoptive family's development.

The family life cycle perspective assumes that adoption is a life-long process which involves corresponding different developmental tasks and stressors. Adoptive families' capacities to tackle these tasks determine whether they can remain stable or end up in dissolution (Hajal & Rosenberg, 1991). According to family life cycle theory, the emergence of adolescence will increase family stress as the complex developmental tasks in this stage substantially test the family system's adaptive capacities. For example, Hajal and Rosenberg (1991) pointed out that the major challenging task in the adolescent stage was to increase flexibility of family boundaries, because adolescents have a strong wish to achieve autonomy. If the family fails to become more flexible, this would lead to tensions between the adolescent and caregivers. Smith and Brodzinsky's (1994) study found that as children get older, they tend to view adoption as negative and indicate ambivalent feelings about being adopted. Those children are apt to report more frequent use of cognitive avoidance and behavioral avoidance coping behavior, resulting in a negative influence on the parent-child relationship.

In addition, behavior and emotional problems of adopted children with special needs can manifest many years after placement (Reilly & Platz, 2003), implying that families are confronted with accumulative strains, placing them at greater risk of dissolution. For example, following families over 8 years after adoption, Wind, Brooks, and Barth (2007) found that adoptive families' service needs increase as children age, and their uses of general and clinical

services increase substantially over an 8-year post-adoption period. More rigorous studies are imperative to understand the ways in which family development influences adoption adjustment.

Summary and Limitations

In this subsection, I apply Bronfenbrenner's ecological systems theory to summarize the previous studies on the adoption/guardianship adjustment for children in the post-permanency stage and their families. The majority of empirical studies focus on exploring the links between child/family's socio-demographic factors and adoption outcomes. Some concentrate on microsystems and examine how families use available resources to cope with parenting stress. Interrelations among home, school, and peers in the mesosystems level are understudied, which may be due to the lack of samples with adopted children in school settings. However, studies of adoptive families' social support, including research on both informal and formal support, are relatively mature, and the evidence consistently confirms the protective role of families' social support.

Although these studies have developed rapidly to delineate the process of post-permanency adjustment, there are some apparent drawbacks embedded within the research. First, existent research examining how factors influence adoption outcomes is scattered and fragmented. Few studies applied a theoretical framework or appropriate theories to inform the research. Even fewer studies have incorporated family theories, such as family stress-coping theory and the family life cycle perspective, to unveil the dynamics occurring within the most important place that the child grows and interacts—the family.

Second, few studies shed light on children who achieve permanency through guardianship, making this population understudied and invisible. Given that legal guardianship is an increasingly important avenue to achieve permanency, researchers should incorporate these

children and youth when exploring factors that influence their functioning and well-being in the post-permanency stage. Third, most studies lump children and adolescents together assuming they are the same. Children and youth less than 18 years old have different characteristics and needs, depending on their developmental phase. Researchers should take the children's developmental age into consideration and recognize the differences between younger and older children.

Finally, most research, with the exception of a few (Howard & Smith, 2003; Reilly & Platz, 2003; Wind et al., 2007), do not specify the time element when examining child and family well-being. The stressors and the coping capacities will vary depending on the adoptive family's development and the child's age. For example, at the beginning of adoption adjustment, adoptive parents tend to deny the fact of adoption and the difference between an adoptive family and a biological family; whereas at the later stage, parents and children can talk about adoption and differences freely (Kirk, 1964). Therefore, it is important to focus on a specific time period in a child's and family's developmental phase when examining adoption outcomes.

Program Evaluations of Post-Permanency Services

Service Needs and Unmet Needs

Although most post-permanency families function well, research indicates that these families have a variety of service needs in the post-permanency adjustment journey. Clinical services, especially those aimed at mitigating the negative effects resulting from maltreatment history and multiple placements, are the most frequently requested services by caregivers (Avery, 2004; McDonald et al., 2001; Reilly & Platz, 2004). As the majority of adoptive families are in low-income groups and are public welfare recipients, financial assistance is vital to provide stable homes to their children (Brooks, Allen, & Barth, 2002; Howard & Smith, 2003).

Support networks have been recognized as one of the most important services because they help improve family functioning and prevent disruption (Houston & Kramer, 2008; Wright & Flynn, 2006; Leung & Erich, 2002). Support groups that serve as mentors are desperately needed by a growing number of families as well.

In the case of closed adoptions where children's histories are confidential, the need for getting information regarding children's histories and backgrounds are frequently requested. Previous studies have emphasized that parents stress the importance of full disclosure of information about the child, including his/her social, medical, and genetic history (Barth & Berry, 1991; Berry & Barth, 1989). Educational services with regard to children's developmental needs are commonly identified by the families as well. Dhimi, Mandel, and Sothmann (2007) found that educational and information services were considered to be more important than material services in Canadian adoptive families. In a survey of 450 children in New York City, Festinger (2006) found that the most needed services facing adoptive parents were after-school services, informational services, educational services, and home assistance with transportation or homemaker assistance.

Despite that post-permanency families express their service needs to varying degrees, their service needs might not be always fully satisfied, which results in unmet service needs. The presence of unmet service needs might reflect that families fail to effectively capitalize on available resources (bB factor) to tackle difficulties and stress facing their adoptive lives. A study in Illinois indicated that over half (63%) of caregivers expressed that the monthly subsidy they received was insufficient to meet their children's needs as they grew (Fuller et al., 2006). Adoptive parents in Festinger's study (2006) were asked when a service was not provided, whether they needed that particular service. More than half of the 450 parents indicated that

after-school services, tutoring services, informational services, and a telephone hotline for information about services were the highest unmet needs. Reilly and Platz's study (2004) on families with special needs showed that the most mentioned unmet needs included counseling, in-home services, informal support, and financial services. Their results also pointed out that unmet service needs are significantly associated with a lower quality parent-child relationship and a negative impact on family and marital relationships. However, the relations between unmet service needs and children's behavior problems or placement stability remain unclear in the research literature.

Service Effectiveness

Despite that many states have begun to provide post-permanency services to meet families' service needs, only a few studies have rigorously evaluated the effectiveness of these services. There are a variety of barriers facing evaluation of post-permanency programs. The biggest difficulty is the lack of sufficient statistical power to detect a program effect due to the small number of families served by the programs. Another important reason is the rarity of outcomes. The fact that adoption disruption or dissolution cases are relatively few makes it difficult to detect significant outcomes (Gibbs, Siebenaler, & Barth, 2002). Other barriers include the ambiguity of time-points at which to measure the outcomes, and the confounding effect of children's developmental changes on the improvement of their behavior problems and family functioning (CWIG, 2005b).

Despite these difficulties, some studies have managed to conduct outcome evaluations explicitly on post-adoption or post-permanency services. I selected 15 evaluation studies which provide a specific and detailed description of the outcome variables and were published over the

last two decades. Each of these studies is categorized according to the outcomes they identified in the study.

Disruption, Dissolution, or Out-of-home Placement

Adoption/guardianship disruption, dissolution, or out-of-home placement as indicators of adoption/guardianship stability are the most frequently used outcome measures because they are an important concern in child welfare policies. Eleven out of the 15 studies located used the rate of disruption, dissolution, or out-of-home placement as the main indicator to measure the effectiveness of the evaluated program. However, due to different populations the programs served and the variations of the service characteristics, the results of these outcomes varied a great deal. Smith's evaluation (2006) of adoption preservation services in Illinois showed that at the conclusion of services, 87% of children receiving services were living at home, which indicated a high rate in preventing out-of-home placement. Similarly, the evaluation of a post-legal adoption support program in San Diego showed that 12% of families had their children living out of home after receiving the services (Tibbitts & Mike, 2002). A study on the Missouri Intensive In-Home Services Program (Berry et al., 2006) found that after being exposed to the intervention, 83% of out-of-home placements were prevented for the adoptive families of children with special needs a year later. There is one study showing an even higher stability rate. Oregon's Post-Adoption Family Therapy Project concluded that 92% of the families were kept intact after finishing the family therapy (Prew, Suter, & Carrington, 1990). The authors attributed the prominent success of the intervention to the incorporation of an experienced adoption worker into the therapy team (Prew et al., 1990).

Other studies evaluating the post-permanency services showed a relatively low stability rate. The Post-Adoption Resources for Training, Networking, and Evaluation Services

(PARTNERS) program attempting to reduce the risk of adoption dissolution and the degree of difficulties facing adoptive families showed that of the 39 families who participated in the program, 29% of the children were in out-of-home placements at the end of the two-year service period (Groze, Young, Corcran-Rumppe, 1991). The high out-of-home placement rate might be due to the long period of the follow-up assessment after providing services. Similarly, Avery's evaluation (2004) on the TANF-funded post adoption services in New York indicated that only 73% of children remained in home for 45 families at the end of the services. However, the less effectiveness of the program may be related to selection bias because those children who were placed out-of-home at the end were the ones who were assessed to be at high risk of out-of-home placement at intake.

Children's Behavior and Socio-emotional Well-being

Children's behavioral and socio-emotional well-being is another commonly used set of indices for measuring the effectiveness of post-adoption services. Five studies specifically included the Child Behavior Checklist as their instrument to compare children's socio-emotional functioning before and after receipt of the services. Two studies evaluating the post-adoption services for children with severe behavioral, emotional, and medical problems demonstrated that children achieve a positive adjustment at home and at school after participating in the services (Goldsmith, 2002; Tibbitts & Mike, 2002). Lenerz et al.'s evaluation (2006) on a post-adoption program provided to 400 adoptive families in Connecticut also showed that the short-term services led to a significant improvement in children's behaviors.

Compared to other reviewed studies, Howard and Smith (1995) provided a relatively rigorous evaluation of the Illinois adoption preservation services. At the end of the first year of the preservation services, there was a significant decline in children's total problems scores,

externalizing behavior scores, and internalizing behavior scores. The most recent post-adoption program evaluation was conducted by Dhimi et al. (2007), which evaluated the post-adoption services provided by the Adoption Support Program in Canada. Their survey of 43 adoptive parents indicated that the use of post-adoption services has a positive impact on children's behaviors and emotions, as well as their relations with siblings and peers.

Summary and Limitations

In this subsection, I summarize the post-permanency service needs and unmet needs and the evaluations of post-permanency services for adopted children and their families. Given the fact that adoptive families are encountering a variety of service needs and not all of them have been met, it is urgent to identify effective programs and promote evidence-based practices to best serve these families. Although these programs were provided in different geographical locations, times, and for different populations, almost all of them can fall into three service paradigms that dominate recent child welfare services: intensive family preservation services, family therapy, and attachment therapy (Barth & Miller, 2000).

The intensive family preservation services mainly draw upon the assumption of an ecological systems approach embracing various direct services and linkage services. Family therapy explicitly asserts that services should not focus on children's behaviors exclusively, but need to consider other family members' reactions, which echoes a family systems approach emphasizing the family as a unit. Attachment therapy contends that rebuilding attachment may buffer parenting stress, thereby improving children's behavioral or emotional problems. Although post-adoption services are built on their own theoretical foundation and philosophical background, the evaluation studies have not yet agreed on a robust model that shows promising effects in this area.

These studies bear some limitations in their validity, design, measurement, and analysis. First, the lack of an experimental design makes it impossible to detect the true program effects (Shadish, Cook, & Campbell, 2002). With one exception (see Lahti, 2006), the reviewed studies did not use a randomized experimental design. Instead the remaining 14 studies used either a one-group posttest-only design or one-group pretest-posttest design, which failed to rule out the influence of confounding factors that might pose a threat to the internal validity of the study.

Second, the only experimental study failed to achieve adequate statistical power to detect a program effect. For example, to achieve a median effect size of .4 with a power of .8, a sample size of at least 100 for each group is needed (see Rossi, Lipsey, & Freeman, 2004). However, in this experimental study, the sample size of 60 children for each group made it impossible to yield a desired level of statistical power to detect a program effect. Therefore, it is unknown whether the failure of the intervention to achieve a significant effect was due to the inadequacy of the study power or the small or nonexistent effect of the intervention per se.

Third, none of these studies provided an implementation integrity assessment, but instead assumed that all participants complied with treatment assignment or they analyzed only families who actually received the services, regardless of whether they were assigned to receive them or they dropped out. Because the research did not differentiate whether the program effect is for “receiving the services” or “assignment to the program,” interpreting the research findings is difficult. For the experimental study (see Lahti, 2006), the analysis used an intent-to-treat (ITT) analysis to examine the effect of program receipt. The findings might have been supplemented by determining any differences between those who were assigned to the treatment compared to those who were not.

Fourth, none of these studies focused on the processes through which post-permanency services lead to adoption/guardianship outcomes. In addition, they did not apply appropriate theories or theoretical framework to attempt to open up the “black box.”

Fifth, few studies used standardized instruments, leading to difficulty in comparing the effect sizes across the studies. Only four studies applied standardized instruments such as the Child Behavior Checklist to examine changes in children’s behavior problems. The others just reported the differences in children’s functioning according to parents’ ratings on self-designed items or their narratives. Another related drawback is the lack of clarity in the presentations of outcomes to compute effect sizes of the program or intervention. Only one study (Howard & Smith, 1995) presented mean values of children’s emotional, behavior, or total behavior problems scores at pre-test and post-test, and only two studies (Howard & Smith, 1995; Dhimi et al., 2007) provided significance tests of the mean differences. However, these studies did not present sufficient information including the standard deviations. In the one experimental study (see Lahti, 2006), the author only presented outcomes of caregivers’ satisfaction with the services, family adaptability, and children’s attachment to parents, but did not compare outcomes between the intervention and comparison group.

Finally, for those studies examining the outcomes of disruption, dissolution, or out-of-home placement, with few exceptions (Berry et al., 2006; Tibbitts & Mike, 2002), none of them explicitly offered definitions or distinguished among these constructs before conducting the analysis. The results are not comparable unless unanimous definitions of these variables are reached. As these variables are the important indexes to measure the effectiveness of post-adoption services, construct validity should be achieved by clarifying the definitions of each construct and determining their measurements before conducting the study.

Purpose and Significance of the Current Study

Given the limitations in existing studies regarding factors influencing post-permanency adjustment and post-permanency program evaluations, this study applied a more rigorous design to detect the outreach post-permanency program effect on youth behavior problems, caregiver commitment, and placement stability. The design included a comparison group and a posttest to estimate the effects of the Illinois APAL services—a community outreach post-permanency program for youth and their families approximately 8 years after adoption or legal guardianship was finalized. To minimize selection bias, the intervention and comparison groups were assigned by using youth's age match. Multivariate regression was used to control for a variety of covariates that were shown in the literature to impact the outcomes, and/or to control for covariates that were determined to be significantly different between the two groups at baseline.

Second, I conducted an implementation integrity assessment to examine how program participants complied with treatment assignment before conducting analyses to determine the effects of the Illinois APAL services. Given the presence of imperfect treatment compliance, an ITT analysis was used to detect the effect of “assignment to the services” and a TOT analysis was used to explore the effect of actually “receiving the services” on a subset of compliers. Both of the approaches provided a more comprehensive understanding of the APAL program effect on the adoption adjustment. The relatively rigorous research design and statistical analysis methods both aimed to increase internal validity of the study.

Third, this research was based on a comprehensive theoretical framework to examine the effects of a post-permanency program on post-permanency adjustment, when the influences of other ecological systems on the child were simultaneously taken into account. The study went beyond concentrating on the level of socio-demographic factors and the microsystems by

combining influential factors from the birth family, social support, as well as the type of permanency placement which captures societal views on adoption/guardianship.

In addition to detecting the APAL program's overall effect, the study used structural equation modeling (SEM) to further explore the process of the program's effectiveness to try to open up the "black box." Specifically, family stress-coping theory assisted in identifying the role of formal social support and caregivers' perceptions of parenting demands in this process. Using the APAL program's logic model as a guide and incorporating family stress-coping theory, I hypothesized a conceptual model to be tested in the study (see Chapter 3 for the program logic model).

The study also used the standardized instrument, the Behavior Problems Index, to measure the impact of post-permanency services on adoption outcomes, allowing the study results to be compared with similar studies. In addition to using a formal measure of out-of-home placement, I considered caregivers' attitudes and propensity to maintain the adoption/guardianship. Given that the occurrence of adoption dissolution is rare, considering caregivers' subjective perceptions as a supplement measure can better predict adoption/guardianship stability.

Finally, this study analyzed a sample of adolescents from 12 to 17 years old, which pinpoints a specific stage in adoptive families' life cycle. As children might present more behavior problems and are more demanding as they age (Reilly & Platz, 2003; Smith & Brodzinsky, 1994), the adolescent developmental stage likely would bring more challenges to adoptive families. Exploring whether and how post-permanency services help these families successfully raise adopted youth is important to reduce risks for out-of-home placements and promote youth's optimal development.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter begins with an overview of the research methodology of the study, and then introduces the research hypotheses to be tested using the Illinois Post-Permanency Round II (PP-II) Survey data. I next present the research design and sample, data, implementation integrity assessment, and measures for the independent variables, covariates, mediating variables, and the outcomes. Finally, this chapter describes how the various methods of analysis, multivariate ordinary least squares (OLS) and logistic regression and structural equation modeling (SEM), are applied to test the research hypotheses.

Overview

This study used both an intention-to-treat (ITT) analysis and a treatment-on-treated (TOT) analysis to evaluate the APAL program effects on youth's behavior problems, caregiver commitment, and youth's out-of-home placement. Following the conventional way of evaluating program effectiveness, an ITT analysis, in which all participants assigned to the intervention group, regardless of receiving it or not, are compared with the whole comparison group, was used as a primary analytic strategy (Freedman, 2005). The ITT analysis is conducted for effectiveness trials, which attempts to estimate the effect of rolling-out a program in which compliance with the assigned treatment may be incomplete. The purpose of using the ITT analysis in the current study was to generate an unbiased estimate of the causal effect of being assigned to the APAL services (treatment group) and the control group. It has implications at the policy level and can be of interest to those who want a better estimate of the effectiveness of the APAL program implemented in agencies. However, under conditions of incomplete compliance, the ITT cannot estimate the impact on those who received the treatment. Incomplete treatment

compliance is likely to be the norm where participants assigned to the intervention group either refuse treatment (“no-shows”) or drop out before treatment is completed (attrition), or participants in the comparison group may access the intervention or similar treatments in the community (“crossovers”). Therefore, without taking into account the program implementation, the ITT analysis generally underestimates the intervention effect (Gubits & Shroder, 2009).

To estimate the effect of receiving the APAL services, a TOT analysis was used as a supplementary analysis. The TOT analysis estimates the effect of the treatment on those who actually receive the services from a *potential outcomes* or *counterfactuals* framework proposed in the Rubin Causal Model (Rubin, 1974). According to the Rubin Causal Model, the effect of receiving the APAL program can be defined as the outcome differences between those who received the APAL services compared to what would have happened if they had not received the APAL services. Let D_i denotes the APAL receipt. Y_{1i} and Y_{0i} are the corresponding outcomes for participant i according to whether this individual received the APAL treatment ($D_i = 1$) or not. Since only one of the two outcomes can be observed for each time, the average causal effect for all those who received the APAL program on the outcomes is equal to

$E[Y_{1i} | D_i = 1] - E[Y_{0i} | D_i = 0]$ (Rubin, 2004). The TOT is associated with efficacy trials and is often called an “efficacy subset analysis,” which estimates the effects of treatments on a subset of participants selected on the basis of post-randomization criterion such as compliance (Lachin, 2000). In this study, the effect of receiving the APAL treatment was estimated by restricting the analysis to those assigned to the APAL intervention group who actually received the APAL services (treatment compliers) and comparing them to those assigned to the comparison group who did not receive the services (comparison compliers). However, the drawback of this analysis is that the subset of treated families may no longer be representative of the entire treatment group

and tends to be subject to self-selection biases, leading to biased estimates of the APAL receipt effect (discussed in the limitations of the study).

Either multivariate OLS regression or logistic regression was used in the ITT and TOT analysis to determine and compare the effects of the APAL program on youth's behavior problems, caregiver commitment, and out-of-home placement. A further analysis, SEM was conducted to shed light on the processes through which the APAL program was effective by examining the mediating effects.

Research Hypotheses

The following research hypotheses were tested in this dissertation:

(1) Adopted youth or youth taken into guardianship who were assigned to the APAL group will display fewer behavior problems, exhibit higher levels of caregiver commitment to them, and be less likely to have an out-of-home placement following the finalization of a permanency plan compared to youth who were assigned to the comparison group (ITT analysis).

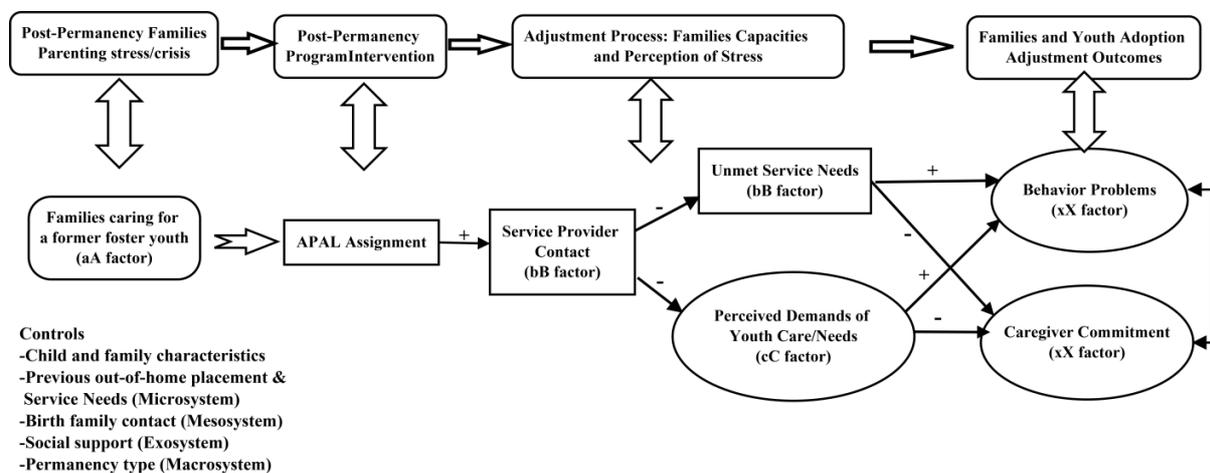
(2) Adopted youth or youth taken into guardianship who complied with assignment to receive the APAL program will also function better in the aforementioned outcomes than those who complied with assignment not to receive the APAL program (TOT analysis), but the estimated effects will more likely be statistically significant or larger than the corresponding results of the ITT analysis.

(3) A reduction in unmet service needs and a decrease in caregivers' perceived demands of youth care or needs will mediate the effects of post-permanency service provider contacts on youth behavior problems and caregivers' commitment. Consistent with the program's logic model I designed for this dissertation (in the Research Design section in this chapter) and the Double ABCX model of family stress-coping theory (McCubbin & Patterson, 1983), this study

assumes that assignment to the APAL program will increase the probability that families in stress or crisis (aA factor) were contacted by service providers (bB factor); and participants who were contacted by the post-permanency service provider, compared to participants who were not, will have fewer unmet service needs (bB factor) and perceive less demands of care/needs (cC factor). Fewer unmet service needs and lower perceptions of care demands will in turn lead to fewer behavior problems (xX factor) and higher levels of caregiver commitment (xX factor). The process of how post-permanency families caring for a former foster youth capitalize on available formal social support and generate meaning to appraise the level of care demands to achieve adoption adjustment is depicted in Figure 1.

I controlled two types of covariates in the data analyses. The first type included those variables that were commonly used in various types of post-permanency studies and were available in the Illinois PP-II Survey and showed significant differences at baseline between the two groups in the ITT or TOT samples. The second type of covariates included those that were not statistically different between the two groups in either sample at baseline, but were shown to significantly influence the outcomes in similar previous studies.

Figure 1. Conceptual Model of the APAL Programs Effect on Youth Behavior Problems and Caregiver Commitment



Intervention Description, Research Design, Population and Sample

Intervention Description

The current research is a secondary analysis of primary data collected by the Child and Family Research Center (CFRC), University of Illinois at Urbana-Champaign and funded by IDCFS to evaluate the effects of an outreach community-based services intervention—the APAL program. Based on a prior study conducted by CFRC on the post-permanency population, an estimated quarter of post-adoption and guardianship families continued to have substantial service needs, that is, 4 to 6 self-reported service needs out of 20 service items (Fuller et al., 2006). IDCFS accordingly funded the APAL program to provide outreach services to assist these families. Because the earlier study showed that families of older youth have more intense service needs, it was decided to target the older child population. Furthermore, in order to strengthen the evaluation of the impact of the APAL program, it was decided to restrict eligibility for the APAL program to children who were either 13 or 16 years old. This would leave children aged 14-15 and 17 and older as comparison cases. Because there is no prior reason to believe that these slight differences in ages between the intervention and comparison groups are correlated with the outcomes of the intervention, the expectation is that an ITT analysis would give a relatively unbiased estimate of the APAL treatment effect.

To explore in more depth the program process and implementation of APAL, I contacted and interviewed five persons who were directly involved with the APAL program (two Program Research Investigators, two supervisors, and one caseworker). Before contacting these workers, I applied for and received an exemption for this research from the School of Social Work's Human Subjects Committee. According to the respondents, the intents of the APAL program were: (1) to detect whether the youth still lives in the home or the placement is maintained

through a friendly home visit; (2) to provide needs assessments and referral services with families to address their service needs; and (3) to help prevent out-of-home placement and increase long-term stability before the post-permanency families went into crisis.

Based on the interviews, the following is a summary of the APAL program process. IDCFS contracted with three private agencies including Center for Family Services, Kaleidoscope, and Kids Hope United (name changed to One Hope United in 2010) to provide the services. These service providers received a list of families from DCFS to contact and provide needs assessments and referral services if needed. Families were assigned to these agencies based on the local area network (LAN)—a geographic code standing for the county in the State of Illinois where the family lives. Approximately five to six caseworkers in each agency implemented the APAL program and each APAL worker had a caseload of approximately 25 to 40 families. A letter inviting families to participate in the APAL project was sent out to the families of children aged 13 or 16 when DCFS was conducting a recertification of caregiver eligibility to renew the annual medical subsidy. In the letter, targeted caregivers were informed of the availability of a community post-permanency program (APAL), and they were encouraged to call a designated APAL agency to schedule a home visit with an APAL worker. If caregivers did not call within a reasonable time period, an effort was made to contact the family by telephone. If after three phone attempts contact was still not made, an in-home visit was made in an attempt to engage the family in a needs assessment. If there was no one home, the agency left a package including an invitation letter and business card at their doors. After contact was made and the caregivers agreed, a home visit or phone interview was scheduled (home visit was preferred).

When the home visits were conducted, caseworkers were able to go into the home and an effort was made to see the youth in person if available. In both the home visits and phone interviews, caregivers were asked whether they needed a set of services in the areas of health and mental health, education, and other support services based on the interview instrument; whether the services were included in the adoption/guardianship agreement; and whether they had tried to obtain those services on their own. If caregivers expressed a need for any of the services and also indicated they needed assistance in getting the services, caseworkers would then refer them to the DCFS post-adoption unit or the Maintaining Adoption Connections (MAC) program, which was funded by IDCFS and aimed to provide post-permanency services by other agencies to the families referred through the APAL outreach program. As soon as the needs assessments and/or service referral was finished, the case was closed. The APAL program started on October 1, 2007; and as of September 30, 2008, 1,916 families who cared for 2,161 target children received the APAL assessment and referral services (Koh & Rolock, 2010).

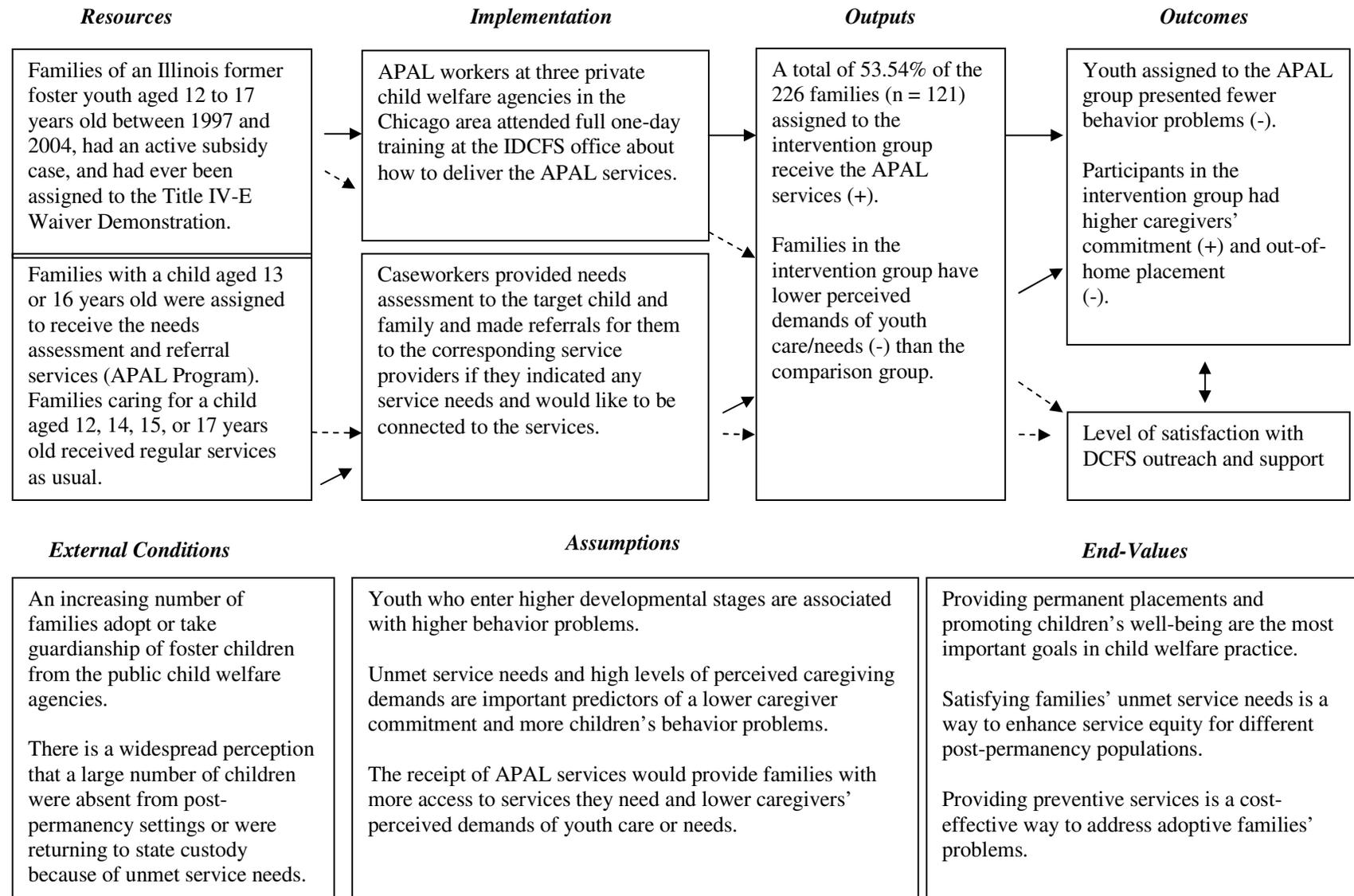
In summary, workers commented that this was a short-term, referral service that did not provide direct intervention to post-permanency families. However, given that many families had difficulties accessing services on their own after finalization, this community service was viewed as a valuable way of assessing the ongoing service needs of the families, confirming that the youth was still residing in the home, and if unmet service needs existed, making a referral to an agency that could assist the families with these service needs. Based on the APAL project's final report, only 53% of the families were successfully contacted by the APAL agencies and actually received the APAL service assessment (Koh & Rolock, 2010). Among those who did not receive the intended outreach services, they were either unable to be contacted or refused to participate due to unwillingness or expressing no service needs (Koh & Rolock, 2010). Since APAL

agencies were unable to reach as many post-permanency families as expected, and even among those families who self-reported unmet service needs, a large proportion did not follow-up on the referrals to the post-permanency unit and MAC programs, DCFS discontinued the funding for the APAL services in the following year.

Research Design

Six-months after APAL outreach was initiated, the Illinois PP-II Survey was fielded to describe and evaluate the effects of the APAL program. The survey was funded by the IDCFS and was embedded within a quasi-experimental design to interview a representative mix of families in both the intervention and comparison groups at approximately six-months after the scheduled recertification date. A logic model linking resources, program implementation, outputs, and outcomes depicts the intervening processes of program effects on outputs and outcomes, and visually guides the implementation and evaluation of the program (Testa, 2010). Adopting the format created by Testa (2010), Figure 2 displays the relationships I tested in the study.

Figure 2. APAL Program Logic Model



Population and Sample

The population involved in the study was families who (1) adopted or assumed guardianship of a former Illinois foster child between July 1997 and June 2004, (2) had an active subsidy case during the study period, and (3) had ever been assigned to the title IV-E Subsidized Guardianship Waiver Demonstration project between May 1997 and June 2002. Because the IDCFS elected not to randomize families to intervention and comparison groups, intervention and comparison groups were assigned by age of the child to lessen the selection biases associated with families self-selecting into the APAL program.

Families caring for a youth who was either 13 or 16 years old were assigned to the intervention group to receive the intended services, referred to as the APAL group, whereas families caring for a youth aged 12, 14, 15, or 17 years (13 is the median of 12 and 14; 16 is the median of 15 and 17) were assigned to the comparison group to receive only regular post-permanency services, referred to as the comparison group.

Stratified random sampling was used to draw a sample of 670 families from the population (N = 4,155). Of the families who were contacted by the caseworkers to receive the APAL needs assessment and/or referral services, 335 households were randomly chosen to be in the intervention group for the six-month follow-up survey. Of the families who were not supposed to receive APAL services, 335 households were randomly selected for the comparison condition. As an unequal probability of selection was used, sample weights were applied so that it is possible to generalize the results of the analysis to the population of adopted youth and those taken into guardianship in the Chicago area. In cases where a family had more than one target child, the child with the earliest case open date was selected by the APAL caseworkers as the target child.

The sample for this study consists of 439 families and represents 65% of the overall families selected into the sample, which includes 226 (67.5%) completed interviews in the APAL group and 213 (63.6%) interviews in the comparison group. A total of 231 cases were not interviewed, including 110 (31.4%) in the intervention sample and 121 (35.6%) in the comparison group. Among those non-interviewed cases, 112 participants refused to participate in the interview due to the lack of interest (intervention, n = 52; comparison, n = 60); five of the surveys were incomplete (intervention, n = 2; comparison, n = 3), and 69 caregivers were not locatable (intervention, n = 32; comparison, n = 37). In addition, 37 respondents were not available because of a physical condition, language barrier, or caregiver's death (intervention, n = 18; comparison, n = 19). Finally, an additional 8 families did not provide their consent to review records in the administrative dataset and were excluded from the final analysis (intervention, n = 6; comparison, n = 2).

Research Data

This study merged together multiple datasets including public child welfare data, APAL program data, and Illinois Post-Permanency Round II (PP-II) Survey data.

Integrated Database (IDB)

The IDCFS Integrated Database was designed by the Chapin Hall Center for Children, a research center that collects abuse and neglect investigation and child welfare services information for children and households involved with the IDCFS. The IDB Home-of-Relative Reform (HMR) Monitor file was created to track the implementation of the HMR Reform, which was initiated in 1995 in Illinois (Testa, 1997). It is the principal source administrative data used in this analysis and contains a special extract of data from the IDCFS Child and Youth Centered Information System (CYCIS). The file contains administrative data that were entered through the

end of December of 2012. Approximately 40 variables are in the HMR Monitor file containing a unique case identification number, which allows the file to be linked to the survey data.

Responses from the Illinois PP-II Survey were linked to the administrative dataset for participants who agreed to this linkage. I drew children's age, gender, race/ethnicity, and records of placement events from this file.

APAL Program Data

The APAL program data, which were collected from October 2007 to September 2008, contain service needs, services received, and unmet service needs of the target children and families who received the APAL services. As APAL workers kept the records for children and caregivers to whom they delivered the APAL services, these data provide one source of information about who received the intended services. I linked this information to the PP-II survey to finalize who received the APAL services.

Illinois Post-Permanency Round II (PP-II) Survey

The Illinois PP-II Survey is the principal dataset I used to test the three research hypotheses. The survey consists of eight parts and contains detailed information about children's socio-demographic characteristics, out-of-home care, behavior problems, household composition and family economics, post-permanency services use, and caregivers' social support. The Principal Investigator of the study was Dr. Mark F. Testa, who at the time was the Director of the CFRC at the University of Illinois at Urbana-Champaign (UIUC). He received approval from the UIUC Institutional Review Board (IRB) to initiate the study in January of 2008.

Data were collected through a structured survey and interviews conducted by several MSW-level social workers from May 2008 to May 2009. Invitation letters were mailed to 670 caregivers to introduce and explain the study. Telephone interviews were then conducted and

each lasted approximately 60 to 90 minutes. For those who could not be reached by phone, in-person visits were made with caregivers from January 2009 to May 2009. A \$40 gift card was provided to the caregivers who completed or partially completed the survey.

Implementation Integrity Assessment

As a comprehensive program evaluation does not only include an outcome evaluation, I conducted a process and implementation integrity assessment of how the APAL program was implemented to provide a fuller picture of the program evaluation. An implementation integrity assessment attempts to examine the degree to which the delivery of an intervention adheres to the program protocol. Dane and Schneider (1998) proposed five dimensions to describe the program implementation integrity, which includes (1) *adherence*: extent to which program components are delivered as prescribed; (2) *exposure*: amount of program content received by participants; (3) *quality*: excellence of service delivery in terms of processes and content; (4) *responsiveness*: satisfaction and engagement of the participants; and (5) *program differentiation*: features of the intervention which are unique to the program and distinguishable from treatment as usual, especially in relationship to the comparison group. Given the available information for this study, I was able to assess the integrity from the dimension of exposure, responsiveness, and program differentiation.

Exposure

In the six-month follow-up, participants from both groups were asked “Since September 2007, were you contacted by a worker in person or by phone who wanted to talk to you about service needs for [focal child]?” To avoid memory deficit and supplement their answers, caregivers’ responses were linked with the APAL program data which provides another source of information about APAL service delivery.

Before I discuss how I supplemented caregivers' responses from the APAL record, I first introduce the concepts describing how participants comply with the treatment assignment. Using Angrist et al.'s language (Angrist, Imbens, & Rubin, 1996), participants can be categorized into four unobservable groups according to their compliance with treatment assignment. In this study, *treatment group compliers* refers to those who were assigned to the APAL group and actually received the APAL services, whereas “*no-shows*” means those assigned to the treatment group did not receive the intended services for whatever reasons (Gennetian, Morris, Bos, & Bloom, 2005). *Comparison group compliers* refers to those in the comparison group who did not receive the service, and the *crossovers* refers to those in the comparison group who migrated to the treatment condition and received the APAL services or similar services.

Table 10 in Appendix A shows the cross-tabulation of service provider contact recalled by the caregivers and the treatment assignment. After having their responses linked to the APAL program data, it was determined that for those assigned to the APAL group, 41 of the 146 in the “no-shows” category and 7 missing cases did actually receive the APAL services. For those in the comparison group, the 6 missing cases did not appear in the APAL program data, which means that they did not receive the APAL services. These verifications from the APAL record were used to make the final determination of who received the services, which is shown in Table 1 below. As indicated in Table 1, slightly over half of the families (53.54%) in the intervention group did receive the intended services (treatment group compliers) and a significant portion of those (46.46%) in the intervention group did not receive the APAL services because they refused, were not locatable, or were not offered the services by the service provider (no-shows). A large majority of participants (91.55%) assigned to the comparison group did not receive the APAL services (comparison group compliers) and a few of them (8.5%) in the comparison group

did diffuse over into the treatment condition and received the APAL services (crossovers). To verify the assumption that the crossovers tend to display more behavior problems than the no-shows, which leads to the hypothesis that the effect of the TOT estimate would be larger than that of the ITT estimate (because it includes the crossover and no-show sample), I conducted a t-test to compare outcome differences between the crossovers and no-show group. The result indicates that the crossovers have more externalizing behaviors than the no-shows (8.83 vs. 7.18), but the difference is only marginally significant ($t = 1.29$, $df = 120$, $p = .09$). The presence of treatment non-compliance provides a rationale to conduct a TOT analysis that aims to examine the effect of program receipt.

For the ITT analysis, the 226 families assigned to the APAL group were compared with the 213 families who were assigned to the comparison group ($N = 439$). For the TOT analysis, the 121 families who complied with the assignment to receive the APAL services were compared with the 195 families who complied with the assignment not to receive the services ($N = 316$). Referring to Table 1 below, in the TOT analysis, the effect of treatment group compliers was compared with the effect of comparison group compliers. Here I assume if the treatment group compliers were contacted by a service provider, they received the APAL services; and if the comparison group compliers were not contacted by a service provider, they did not receive the services. For the SEM analysis, the APAL assignment is the independent variable (226 vs. 213) and the provider contact is one of the mediating variables (139 vs. 300) ($N = 439$).

Table 1. Service Contact by Assignment (Sources were a combination of data from the APAL program and the PP-II survey)

	Intervention Group		Comparison Group		N
	n	%	n	%	
Provider Contact	121(Compliers)	53.54	18(Crossovers)	8.45	139
No Provider Contact	105(No-shows)	46.46	195(Compliers)	91.55	300
N	226		213		439

Responsiveness

This section examines the satisfaction ratings of those who received the APAL services. In section F within the PP-II survey, respondents were asked overall how helpful the DCFS and its service providers had been in responding to their needs since finalization. Table 2 shows the perceived helpfulness of the DCFS for those who were assigned to the APAL group and received the APAL services. As indicated, slightly over half of the families receiving APAL services indicated that the DCFS's response to their service needs was very helpful or somewhat helpful. However, approximately a quarter of them felt that the DCFS was not very helpful in responding to their service needs. I conducted a chi-square test to compare whether there is a difference in the perceived helpfulness of the DCFS between the treatment compliers and comparison compliers group, and the results were not statistically significant ($\chi^2= 3.00$, $df = 3$, $p = .39$). This demonstrates that the satisfaction ratings of those who received the APAL services is not significantly higher than those who did not receive the services, which suggests the need for further qualitative study (discussed in Chapter 5).

Table 2 Helpfulness of the DCFS in Responding to Service Needs (N=121)

Satisfaction	n	%	95% Confidence Interval
Very helpful	39	32.50	23.99-41.00
Somewhat helpful	25	20.83	13.46-28.20
Not very helpful	27	22.50	14.92-30.07
Not applicable	30	24.79	16.40-31.93
Total	121	100%	

Program Differentiation

For those families who were assigned to the comparison group and received the APAL services, it was unclear whether the service they received was indeed the APAL services because they might have received other similar or dissimilar services that were mistaken for "APAL services." To disentangle the treatment dilution, I re-examined whether the services received by

the “crossovers” was truly the APAL services. For the 18 cases of crossovers who claimed they were contacted by a worker, it was determined that not all of them were actually contacted by an APAL provider. The cross-validation from the APAL program data indicates that only 4 of them appeared in the record, showing that only these 4 received APAL services. For the remaining 14 cases, I further examined whether they were contacted by one of the 3 APAL agencies using the PP-II survey data. I analyzed their responses to the question “What is the name of agency that contacted you” in the Section F in the PP-II survey. Results show that only one of the 14 cases reported being contacted by any of the APAL agencies, and the rest of the 13 chose either “other agencies” or expressed not knowing which agency contacted them. In sum, only 5 out of the 18 crossover cases did receive APAL services, and the remaining 13 received other services that may or may not be similar to the APAL services.

The way in which the 13 families were categorized as crossovers can influence how the sample size was determined for the comparison group in the TOT analysis, thus impacting the program receipt estimate. Therefore, I conducted a sensitivity analysis to compare two different scenarios for the TOT analysis. The first scenario treated only the 5 cases (who indeed received APAL services) as crossovers, so the TOT analysis in this case is comparing 121 families with 208 families ($195 + 13 = 208$) as I eliminated 5 cases from the analysis and put the 13 crossovers into the comparison group compliers. The second analysis treats the 18 cases as crossovers, which is the TOT analysis I used for the study (results shown in Table 3 in Chapter 4). Compared to the results of the second scenario, the results of the first scenario are almost identical except for a slight difference in the magnitude of the regression coefficients and effect sizes. In the TOT analysis for the first case, the APAL program receipt is significantly associated with externalizing behaviors ($B = -1.465$; $p < .01$), and the effect size is .301; and APAL

program receipt is also significantly associated with caregiver commitment level ($B = 1.051$; $p < .01$), and the effect size is .327. The regression coefficients and effect sizes for the two outcomes are larger than those of the second scenario, the TOT analysis results I present in Table 3 in Chapter 4. However, since the differences are not substantial and the effect sizes are all considered as “small,” it makes little difference in treating the 13 cases as crossovers or as comparison group compliers. In other words, the differentiation between APAL program receipt and other services receipt is not large.

Measures

Independent Variables

As the study used two types of analyses to explore the APAL program impact on the outcomes, the independent variable for each type of analysis was different. In the ITT analysis, the independent variable is referred to as “APAL assignment,” and was defined as a dichotomous variable indicating whether the family was assigned to the intervention group (coded as 1) or the comparison (coded as 0).

The independent variable for the TOT analysis is referred to as “APAL receipt,” and was defined as a dichotomous variable indicating whether the participants were treatment group compliers (coded as 1) or comparison group compliers (coded as 0).

Covariates

Based on ecological systems theory, a variety of factors imbedded within each systems level were selected from the available data in the PP-II Survey data. The selection of variables was based on a review of previous adoption studies (e.g., Barth & Berry, 1988; Haugaard & Hazan, 2003; Howard & Smith, 2003; Leung & Erich, 2002; McDonald et al., 2001; Smith et al., 2006; Testa, 2002, 2004; Webster et al., 2000). I then conducted chi-square tests or t-tests to

detect statistical differences between the two groups within the ITT (APAL group vs. comparison group) and the TOT (APAL receipt vs. comparison group) sample. Detailed baseline difference tests for these covariates are shown in Table 11 in Appendix A. Those covariates that demonstrated statistically significant differences at baseline between groups in either sample were placed into the multivariate regression models. These covariates included child's age at study, race, regular school attendance, family income, household size, the number of children being adopted or under guardianship, monthly subsidy, and medical insurance in the ITT sample; and child's age at study, regular school attendance, family income, household size, the number of children being adopted or under guardianship, monthly subsidy, and medical insurance in the TOT sample.

The second type of covariates included in the multivariate regression models was those shown to be related to similar outcomes by many past post-permanency studies even though they were not statistically different at baseline in either sample. These covariates consist of disability, kinship placement, caregiver's marital status, pre-intervention out-of-home placement, the number of post-permanency service needs, birth family contact, informal social support, and permanency type. The variables that are defined in the subsequent subsections are the final covariates included in the ITT and TOT regression models. For the SEM, I just included the covariates which showed significant relations with the mediators or the outcomes to ensure model fit. These variables consist of child's age at study, pre-intervention out-of-home placements, number of service needs, family income, and permanency type.

Child and Family Characteristics

Child's age at the time of the study (2008) was measured as a continuous variable in years (ranges from 12 to 18 years). Child's race was represented by two categorical variables,

including Hispanic (= 1) and Caucasian (= 1), and African American (= 0) was the reference group. Disability was a dichotomous variable and defined as the child having a physical health problem, mental/emotional disorder, or receiving special education (1 = had disability; 0 = had no disability). Attending school regularly was a dichotomous variable (1 = the child went to school most days in the last month; 0 = the child did not). Kinship placement was a dichotomous variable (1 = placed with relatives; 0 = place with non-relatives). Caregiver's marital status was a dichotomous variable (1=married; 0=single, divorced, or widowed). The family income variable has eight categories (ranging from less than \$5,000 to more than \$80,000) and was coded as an integer variable in which higher categories indicate higher family income. The household size referring to the total number of adults and children living in the household was coded as a continuous variable and ranges from 1 to 13. The number of children living at home who were being adopted or under guardianship was coded as a continuous variable and ranges from 0 to 6 (0 indicates that of the children currently living in the home at the time of the study, none of them was adopted or taken into guardianship).

Microsystems

Pre-intervention out-of-home placement. This variable represents the microsystems level as the placement history occurred in the immediate environment in which the child lived. These data are based on reports of the caregivers in the PP-II Survey, and are different from the administrative data sources used to create the post-intervention indicator of out-of-home placement. The baseline data measuring placement stability between the date of finalization and the date of the interview was a dichotomous variable and coded as 1 if the child had ever lived in or had been placed into an out-of-home setting (i.e., foster home, residential care or a group

home, inpatient psychiatric hospital, ran away, or lived outside the home for two weeks or longer), and coded as 0 if the child had never lived in an out-of-home setting.

Number of post-permanency service needs. This variable also represents the microsystems level as post-permanency service needs arise from the interaction between the child and the innermost ecological environment affecting the child's development—his/her family. In the “Post-Finalization Services” section of the Illinois PP-II Survey, families were asked whether they needed any of the listed 19 services in the health, mental health, education, and general services areas. The answers were coded as 1 if the family indicated “Yes,” and 0 if they indicated “No” to each item. The 19 variables were then summed to create a continuous composite score for the number of post-permanency service needs. Possible scores range from 0 to 19, with higher values indicating a higher number of post-permanency service needs.

Mesosystems

Birth family contact. This variable represents the mesosystems level as it embodies the interrelations between two immediate environments in which the child is present. It was a dichotomous variable, and coded as 1 if the child had any contact with his/her biological mother, father, or sibling(s) in the past year, and 0 if the child had no such contact.

Exosystems

Social support. The exosystems level was represented by two types of social support: informal and formal. Caregivers' social support networks manifest the informal social support they received for caring for their youth, which was measured by 15 items adapted from the Resource Generator Scale (Van Der Gaag & Snijders, 2005). This scale assesses a person's financial skills social capital, personal support social capital, and personal skills social capital. Caregivers were asked whether they could turn to a family member, close friend, or

neighbor/personal acquaintance for help when encountering financial stress, psychological distress, and childcare stress. The answers were coded as 1 if he/she indicated “Yes,” and 0 if he/she indicated “No” to each item. The variables were then summed to create a continuous composite score for the caregivers’ informal social support. Possible scores range from 0 to 45, with higher values indicating higher social support. Receiving a monthly subsidy and a medical card from the DCFS were the two variables reflecting families’ formal social support. Receiving a monthly subsidy was measured as a dichotomous variable (1 = the family received a monthly subsidy; 0 = the family received no subsidy). Receiving a medical card was also measured as a dichotomous variable (1 = the family received a medical card; 0 = the family received no medical card).

Macrosystems

Permanency type. This variable represents the macrosystems level because, as discussed in Chapter 2, society attaches strong beliefs about how adoption and guardianship are viewed. The permanency type variable was a dichotomous variable, and was coded as 1 if the child was adopted, and 0 if the child was taken into guardianship.

Mediating Variables

In the SEM, service provider contacts and reductions in unmet service needs and caregivers’ perceived demands of youth care or needs were the hypothesized mediators through which the APAL assignment led to fewer behavior problems and higher levels of caregiver commitment. The presumed mediating effect of post-permanency service provider contacts can be drawn from family stress-coping theory which postulates that family’s use of available resources (bB factor) is essential to alleviate parenting stress. The presumed mediating effect of caregivers’ perceived demands of youth care or needs can also be drawn from family stress-

coping theory postulating that a family's more positive interpretation or appraisal of the level of stress (cC factor) can serve as a resilient factor to cope with stressors. In the PP-II Survey, after being contacted by service providers, families are assumed to exhibit a lower perception of demands of youth care or needs and fewer unmet needs. This is because they experience more social support or change their perceptions of the nature of the demands on their caregiving role. Positive changes in any of these mediating mechanisms are posited to lead to better adoption and guardianship outcomes.

Service Provider Contacts

At the six-month follow-up after the APAL program was implemented, caregivers were asked in the "Post-finalization Services" section of the Illinois PP-II Survey whether they were contacted by a worker inquiring about the service needs for their child. Their responses were supplemented by the APAL program data recording which families received the APAL services (see Implementation Integrity Assessment). The provider contacts variable was created as a dichotomous variable and coded as 1 if the families were contacted by one of the service providers³, and coded as 0 if they were not contacted by any service provider. As indicated by Table 1 in this chapter, a total of 139 families were contacted, whereas 300 families were not contacted by any service providers.

Unmet Service Needs

Unmet service needs was defined by information attained at the six-month follow-up in the "Post-finalization Services" section of the Illinois PP-II Survey where interviewers examined caregivers' service needs and utilization. When caregivers indicated any needed services, they were further asked whether they tried to obtain the service. In cases where they tried to seek the

³ As discussed earlier, only 5 out of the 18 crossovers did receive the APAL services. The remainder of the 13 families indicated that they were contacted by a service provider, but they might not have been APAL service providers.

service but were unsuccessful, this was counted as an unmet service need. For those who did not indicate any service need or did not try to obtain the service, they were counted as having no unmet service need. The “unmet service needs” variable was created by summing the number of 20 different unmet needs for each participant, and was treated as a continuous variable where higher values indicate higher numbers of unmet service needs (possible number of unmet needs ranged from 0 to 20).

Perceived Demands of Youth Care or Needs

Caregivers’ perceptions of demands of youth care or needs was obtained from the six-month follow-up in the “Target Child” section of the Illinois PP-II Survey, which examines youth’s special needs and behavior problems and how caregivers view their children’s special needs. Caregivers were asked the amount of care and attention needed to care for their children’s emotional, educational, medical, and transportation needs. For example, “Since [child’s name] adoption/guardianship became final would you say that his/her emotional needs generally required...?” Participants rated each of the items on a 3-point Likert-type scale ranging from “less care and attention than you expected” to “more care and attention than you expected,” with higher scores indicating higher perceived demands of youth care or needs on their caregiving role. Cronbach’s alpha for the scale is .68. The four items were used as observed indicators to form the latent construct of perceived demands of youth care or needs, which was determined by a confirmatory factor analysis in the Mplus program.

Outcome Variables

Post-Intervention Behavior Problems

The standardized instrument, the Behavior Problems Index (BPI), was used to measure the two types of behaviors: externalizing and internalizing (Peterson & Zill, 1986). The

instrument contains 28 items which measure the severity of behavior and emotional problems of children age 4 or older. Caregivers are asked to rate as “often true,” “sometimes true,” or “not true” the occurrence of each behavior of the child over the past three months at the six-month follow-up. BPI items were dichotomized into two categories where “yes” category (coded as 1) indicates “often true” or “sometimes true” and “no” category (coded as 0) stands for “not true.” Five items (“cries too much,” “demands a lot of attention,” “too dependent on others,” “clinging to adults,” and “broken things on purpose”) were only computed for children younger than 12 years because these questions are only asked for younger children (NLSY79, 2009).

My preliminary factor analysis demonstrates that the BPI scale is represented by two subscales. The first subscale contains 17 items and measures a child’s externalizing or aggressive behavior (such as bullying, cheating, disobeying, impulsiveness, and arguing). The other subscale contains 10 items and measures internalizing behaviors (such as withdrawal, fearfulness, depression, feelings of worthlessness, and obsessions). The items within the two subscales were summed to create the externalizing behavior problems variable, which ranges from 0 to 17, and internalizing behavior problems, which ranges from 0 to 10, with higher values indicating more behavior problems (hypotheses 1 and 2). Cronbach’s alpha for the externalizing and internalizing subscales were .91 and .87, respectively. The standardized sum scores of the two subscales were used as observed indicators to form the latent construct of youth behavior problems for the SEM (hypothesis 3).

Post-Intervention Caregivers’ Commitment

Seven items from the six-month follow-up in the “Thought about Your Adoption/Guardianship” section of the Illinois PP-II were used to create this variable. These items aimed to assess caregivers’ subjective attitude to maintain the adoption/guardianship and

were rated on a 3-point or 5-point scale (for example, “If I could, I would end this adoption/guardianship”; “I feel pleasure in parenting my child”; “I always feel angry with my child”; “I feel confident that I can meet my child’s needs”; and “I am able to manage my child’s behavior”). The responses were summed to create a continuous score which could range from 7 to 31, with higher scores indicating higher caregivers’ commitment to the child (hypotheses 1 and 2). These seven items were used as observed indicators to create the caregiver commitment latent variable for the SEM (hypothesis 3). The Cronbach’s alpha is .73.

Post-Intervention Out-of-Home Placement

Whether the adoption/guardianship placement was maintained three years after the APAL program was implemented was obtained from the IDB that tracks each child’s placement event after adoption/guardianship was finalized. Since the APAL was implemented in 2008, I used the most recent available monitor file collecting the child’s information until December 30, 2012. This variable was coded as 0 if the child had never placed out of home, and as 1 if the child had ever lived in or had been placed into an out-of-home setting (hypotheses 1 and 2).

Missing Data Analysis

Data from the 439 sample with no missing data were used for analysis. None of the variables, including dependent variables, had missing values for more than 5% of the sample. As the missing data were few, I chose list-wise deletion for cases with incomplete data. Depending on the number of missing values in variables entered into the model, the analytic sample size was different for some of the models. For the ITT analysis, the final sample size for analyses of the externalizing and internalizing behavior was 417, and was 410 for the caregivers’ commitment model. For the TOT analysis, the final sample size for analyses of the externalizing and internalizing behavior was 304, and was 298 for the caregivers’ commitment model. For the

SEM analysis, the sample size was 422. Because the aggregated missing values for the analyses of any of dependent variables was less than 6%, I assume the missing data would introduce no or minimal bias to the results.

Methods of Analysis

First, descriptive statistics (percentages or means and standard deviations) for all of the variables entered into the regression analyses were computed. Second, multivariate OLS regression and logistic regression were used to test hypotheses 1 and 2. As normality tests for the three dependent variables—externalizing (skewness = .27, kurtosis = 1.89), internalizing behavior problem (skewness = .92, kurtosis = 2.72), and caregiver’s commitment (skewness = -1.45, kurtosis = 5.84) indicate that they approach a normal distribution, multivariate OLS were used to estimate the program effects on these outcomes. For the dichotomous outcome variable, out-of-home placement, multivariate logistic regression was used to examine whether the APAL program reduced the likelihood of out-of-home placement. As the study applied a disproportionate sampling strategy, all of the descriptive and regression analyses were weighted in order for the results to be generalized to the Chicago area population. The weight was calculated using the proportion of adoption versus guardianship cases in the population and created by the principal investigator of the project. The analyses were conducted using Stata 10.1 statistical software.

Third, SEM was used to test hypothesis 3. SEM estimates the model as a system of equations and allows for estimating the relationships among latent constructs while taking into account the joint correlations within them (Kline, 2005). I performed SEM using the Mplus version 6.1, which can handle complex survey data and categorical dependent variables (Muthén & Muthén, 1998-2010). A two-step modeling procedure was used to estimate the SEM in which

each latent construct was tested to establish reliable measures as a first step, followed by running the structural part of the SEM as a path analysis as a second step (Anderson & Gerbing, 1988). Results from the SEM analysis were also weighted.

The Measurement Model

Confirmatory Factor Analysis (CFA)

CFA is used to establish a good measurement model which determines the relationships between a set of observed variables and a set of unobserved latent variables. It is useful to test construct validity and validate the constructs of measurement underlying the hypothesized model. As each latent variable must be assigned a metric in order to identify the model, I fixed the strongest loading to 1 (Kline, 2005). Because many indicators of the latent outcome variable were dichotomously-scored test items and likert-scale questionnaire items, a traditional continuous factor model using maximum likelihood estimation is no longer applicable as the variables violate the assumption of multivariate normal distributions. Therefore, I used a weighted least squares (WLS) estimation that generated asymptotic correlation matrices. The asymptotic matrices are estimated as if pairs of variables were continuous and normally distributed in the population (Kline, 2005).

Some formal statistical tests and goodness-of-fit indices were employed to test the fitness of the measurement model. These include chi-square goodness-of-fit statistic, Root Mean Square Error of Approximation (RMSEA), Weighted Root Mean Square Residual (WRMR), Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). The chi-square test statistic was used to test the null hypothesis that the model-implied covariance matrix Σ is equal to the population covariance matrix $\Sigma(\theta)$. A non-significant result is required to accept the measurement model. However, as the chi-square test statistic is based on the assumption that the

observed variables are multivariate normal and is biased upwards with increasing sample size (Hu & Bentler, 1995; Schermelleh-Engel, Moosbrugger, & Müller, 2003), it is not a robust fit index and should be supplemented by other fit indices. The RMSEA is a measure of overall model fit which estimates the amount of error of approximation per model degrees of freedom and takes sample size into account (Kline, 2005). RMSEA values of .05 or less can be considered as a good fit, and values between .05 and .08 as an acceptable fit (Browne & Cudeck, 1993). The WRMR is a measure recommended for fit of models with categorical observed variables stemming from the Root Mean Square Residual (RMSR) measuring the mean absolute value of the covariance residuals. Yu (2002) suggested that WRMR values less than 1.0 indicate a good fit, and 0 indicates a perfect model fit.

Two incremental fit indices based on model comparisons also were used: the Comparative Fit Index (CFI; Bentler & Bonnet, 1980) and the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973). These indexes assess the relative improvement in model fit between my hypothesized model and the null model in which all parameters are fixed to zero (Jöreskog & Sörbom, 1993). A general rule for the CFI and TLI is that values should be .90 or greater for an acceptable fit and .95 or greater for a good fit (Hu & Bentler, 1999).

The Structural Latent Variable Model

The structural model was used to estimate the relationships among the exogenous treatment and covariate variables and the latent outcome variables in my study. Two prerequisites must be fulfilled in order to identify the model. First, the number of observations, which equals $v(v+1)/2$, where v is the number of observed variables, must equal or exceed the number of free parameter; that is, the model degrees of freedom must be larger than 0 (Kline, 2005). The number of observed variables I put into my final model was 21 including 15 observed

dependent variables and 6 observed exogenous variables, and the number of observations equals 231 ($21 \cdot (21+1)/2 = 231$), which is larger than the 95 free parameters I estimated in the model. Therefore, the model degrees of freedom (the difference between the number of observations and the number of parameters) is larger than 0. The second requirement is that every latent variable must have a scale, which can be realized by imposing a unit loading identification (ULI) to the latent outcome variables where the loading of one indicator of each factor is fixed to 1.0 (Kline, 2005).

The overall model fit of the SEM was evaluated using the statistical indexes discussed in the measurement model section, which included the chi-square test statistic, RMSEA, WRMR, CFI, and TLI. In addition, to finalize a parsimonious model that fits the data reasonably well, chi-square difference tests were performed to test the statistical significance of the improvement in fit among a series of competing models. These competing models include the direct influence model (independent variables affect the outcomes directly), mediation model (effects of incrementally added mediators to the outcomes), and the hypothesized model (Eamon, 2000). As the difference between two chi-squares for nested models is not distributed as chi-square under nonnormality, the Satorra-Bentler scaled chi-square difference test (TrD) using the **difftest** command in Mplus6.1 was conducted (Satorra & Bentler, 2001). The null hypothesis whether the nested model is identical to the comparison model was tested. Using the model trimming strategy in the difference test, if the test is significant and the null hypothesis is rejected, this result suggests that the model has been overly simplified, and the more complex model of the two should be kept (Kline, 2005).

CHAPTER 4

RESULTS

This chapter presents the results of the data analyses. It includes descriptive statistics for all of the variables entered into the models, and results of the multivariate OLS regression, multivariate logistic regression, and SEM analysis that tested hypotheses related to the APAL program effects on youth externalizing and internalizing behaviors, caregiver commitment, and out-of-home placement.

Descriptive Statistics

Independent Variables

As indicated in Table 3, the APAL assignment was the independent variable for the ITT analysis where 226 families and youth were assigned to the APAL group (47.04%), and 213 participants (52.96%) were assigned to the comparison group. APAL receipt was the independent variable for the TOT analysis where 121 families were assigned to the intervention group and received the APAL services (34.55%), and 195 families were assigned to the comparison group and did not receive the intervention (65.45%). The number of participants who responded to each of the variables is listed in Table 3. Because I eliminated the missing cases from my data analyses, the sample size for each of the analyses varies depending on the variables entered into the analysis.

Covariates

The final sample for the Illinois PP-II Survey included 439 youth and their families, representing 3,934 weighted post-permanency families in the State of Illinois. As shown in Table 3, the average age of youth when they participated in the study was 15.09 years. The majority of the youth in the sample were African Americans (94.16%), and only 2.10% were Hispanics, and

2.83% were Caucasians. Nearly half of the youth (46.42%) had special needs including a physical health problem, a mental/emotional disorder, and/or a learning disability, but a large majority of the youth attended school most days in the past month (89.52%), and were placed with their biological relatives (85.23%).

Approximately a fifth of the caregivers were married (21.53%), and the rest were single, divorced, or widowed (78.47%). The mean household income category these families fell into was 3.71, representing an annual income between \$20,000 and \$30,000. An average of four persons including adults and children lived in the households. These families adopted or took guardianship of an average of two children.

As of the date of the interview, less than a quarter of youth (20.52%) had ever been placed out of home after finalization according to caregivers' reports, including being placed in a group home or residential care, or inpatient psychiatric hospital, ran away, and/or were living outside the home. Families varied in the number of post-permanency service needs after the adoption or guardianship was finalized, ranging from 0 to 14, and the mean number of service needs was less than three (2.37). An overwhelming majority of youth maintained contact with their birth parents and/or siblings (93.89%).

Post-permanency families received different types of social support for caring for their youth. With regard to their informal social support, caregivers' scored on their social support network index an average of 28 out of 45. Additionally, almost all of them were provided with formal support from the government by receiving a monthly subsidy (94.97%) and a medical card (96.32%) to assist with covering the cost of caring for and raising their youth. As to the ways to achieve permanency, a higher percentage of youth were adopted (70.84%) rather than being taken into guardianship.

I also presented these descriptive statistics separately for the ITT and TOT samples. The distributions or the mean differences for most covariates between the two groups in each of these samples is very similar, except that the differences in regular school attendance and household size appear larger in the TOT sample than in the ITT sample.

Mediating Variables

As shown in Table 3, a total of 139 out of 439 families were contacted by one of the service providers. The unmet service needs ranged from 0 to 5, with a mean of .28. The perceived demands of youth care or needs ranged from 4 to 12, with a mean of 8.24. For the ITT and TOT samples, no large differences were determined in terms of variable distribution.

Outcomes

Four outcomes were used for the regression analysis, as can be seen in Table 3. The post-intervention externalizing behavior score ranged from 0 to 17, with a mean of 7.33. The post-intervention internalizing behavior score ranged from 0 to 10, with a mean of 3.19. The post-intervention caregivers' commitment score ranged from 12 to 31, and the mean was 27.19. Finally, after the APAL program was implemented and until September 30, 2012, there were 33 youth out of the 439 sample (322 youth out of the 3,934 sample) who had ever been placed out of home, accounting for 8.19% of the total sample. The descriptive statistics for the externalizing behavior, internalizing behavior, and caregiver commitment variables between the ITT and TOT samples are fairly similar. However, the difference in out-of-home placements between the intervention and comparison groups is larger in the TOT sample than in the ITT sample.

Table 3. Descriptive Statistics for All Variables Included in the Regression Models and SEM Analysis

Variable	Sample (N=439)		ITT Sample		TOT Sample	
	n	% / Mean (SE)	APAL Assignment (n=226)	Comparison Group (n=213)	APAL Received (n=121)	Comparison Group (n=195)
			% / Mean (SE)	% / Mean (SE)	% / Mean (SE)	% / Mean (SE)
Independent variable						
APAL assignment (n = 439)	226	47.04%	-	-	-	-
APAL receipt (n = 439)	121	34.55%	-	-	-	-
Covariates						
Child and family characteristics						
Age at study (range 12-18) (n = 439)	-	15.09(.10)	14.81(.11)	15.34(.17)	14.81(.15)	15.27(.18)
Race/ethnicity (n = 435)						
African American	414	94.16%	96.85%	91.77%	95.92%	91.41%
White	12	2.83%	1.87%	3.68%	2.75%	4.00%
Hispanic	9	2.10%	.92%	3.15%	1.01%	3.43%
Disability (n = 439)	206	46.42%	40.79%	51.41%	41.07%	50.67%
Attending school most days in past month (n = 439)	387	89.52%	95.02%	84.63%	97.65%	84.38%
Kinship placement (n = 439)	364	85.23%	85.67%	84.84%	83.74%	84.62%
Caregiver married (n = 439)	101	21.53%	22.95%	20.26%	21.33%	21.89%
Family income (range 1-8) (n = 425)	-	3.71(.10)	4.07(.13)	3.38(.15)	4.11(.17)	3.38(.15)
Household size (range 0-13) (n = 438)	-	4.33(.11)	4.68(.14)	4.01(.16)	4.72(.21)	3.97(.17)
Number of children were adopted/under guardianship (range 0-6) (n = 437)	-	2.10(.07)	2.42(.09)	1.81(1.00)	2.41(.13)	1.86(.10)
Microsystems						
Pre-intervention out-of-home placement (n = 439)	92	20.52%	17.22%	23.44%	18.13%	23.07%
Number of post-permanency service needs (range 0-14) (n = 437)	-	2.37(.15)	2.25(.18)	2.48(.21)	2.26(.25)	2.48(.21)
Mesosystems						
Birth family contact (n = 439)	407	93.89%	91.91%	95.64%	88.61%	95.25%
Exosystems						
Informal social support (range 1-45) (n = 434)	-	27.91(.67)	28.38 (.85)	27.48(.85)	28.77(1.14)	27.43(.91)
Receiving a monthly subsidy (n = 434)	414	94.97%	99.62%	90.86%	99.31%	90.04%
Receiving medical card/insurance (n = 436)	415	96.32%	99.27%	93.71%	98.99%	93.14%
Macrosystems						
Adoption (n = 439)	277	70.84%	72.90%	69.02%	71.42%	69.66%
Mediating variable						
Service provider contact (n = 439)	139	30.01%	-	-	-	-
Unmet service needs (range 0-5) (n = 439)	-	.28(.05)	.22(.04)	.35(.08)	.29(.06)	.36(.09)

Table 3. (cont.)

Variable	Sample (N=439)		ITT Sample		TOT Sample	
	n	Mean (SE)	APAL Assignment (n=226)	Comparison Group (n=213)	APAL Received (n=121)	Comparison Group (n=195)
			% /	% /	% /	% /
Perceived demands of youth care/needs (range 4-12) (n = 439)	-	8.24(.12)	7.98(.13)	8.47(.19)	7.96(.17)	8.57(.20)
Outcome variable						
Post-intervention externalizing behavior (range 0-17) (n = 438)	-	7.33(.28)	6.31(.36)	8.22(.40)	6.00(.46)	8.07(.42)
Post-intervention internalizing behavior (range 0-10) (n = 438)	-	3.19(.18)	2.69(.22)	3.63(.28)	2.62(.30)	3.58(.29)
Post-intervention caregivers' commitment (range 12-31) (n = 428)	-	27.19(.20)	27.96(.19)	26.50(.32)	28.11(.24)	26.62(.33)
Post-intervention out-of-home placement (n = 439)	33	8.19%	6.37%	9.81%	4.79%	10.50%

Note. All the percentages and means are weighted; the numbers are unweighted. SE = standard error.

Multivariate Regression Analysis

This section presents the results of the multivariate analyses that tested hypotheses 1 and 2. That is, APAL assignment and APAL receipt would decrease youth behavior problems, increase caregiver commitment, and decrease out-of-home placement.

Effects of APAL Program Assignment on Outcomes

Impacts of APAL Program Assignment on Post-Intervention Externalizing Behaviors

The results of the multivariate regression analysis estimating the impact of APAL program assignment on the outcomes are presented in Table 4. As hypothesized, being assigned to the APAL group was significantly associated with fewer youth externalizing behaviors ($B = -1.303$; $p = .009$), when simultaneously controlling for the effects of the covariates. Specifically, youth who were assigned to the APAL group had an average of 1.303 lower scores on externalizing behaviors than those who were assigned to the comparison group.

Covariates shown to be significantly related with the outcome are as follows. As youth became older they were more likely to exhibit fewer externalizing behaviors ($B = -.360$; $p = .024$), as did Hispanic youth, compared to African American youth ($B = -3.623$; $p = .002$). Attending school regularly was negatively associated with externalizing behavior problems ($B = -1.949$; $p = .029$). The higher the family income, the fewer externalizing behavior youth exhibited ($B = -.342$; $p = .021$). Not surprisingly, youth's pre-intervention out-of-home placement ($B = 2.533$; $p = .000$) and higher numbers of post-permanency service needs ($B = .584$; $p = .000$) were positively related to higher scores of youth's externalizing behaviors. Finally, compared to those who achieved permanency through legal guardianship, youth who were adopted tended to display fewer externalizing behaviors ($B = -1.003$; $p = .031$).

The independent variables in the multivariate OLS regression model accounted for 35.1% of the variance in externalizing behaviors, and the model was statistically significant [$F(18, 399) = 13.80, p < .001$].

Impacts of APAL Program Assignment on Post-Intervention Internalizing Behaviors

Although the relation between APAL assignment and internalizing behaviors was in the hypothesized direction, being assigned to the APAL program was not statistically significantly related to fewer youth's internalizing behaviors ($B = -.468; p = .137$), when simultaneously controlling for the effects of covariates (see Table 4).

A number of covariates were significantly associated with youth's internalizing behaviors. Child's age was inversely related with internalizing behaviors ($B = -.233; p = .014$). Hispanic youth, compared to African American youth, also displayed fewer internalizing behaviors ($B = -1.723; p = .001$). Disabled youth with special needs had more internalizing behaviors ($B = .918; p < .007$) than children with no disabilities, and youth who attended school regularly had fewer such behaviors ($B = -1.452; p = .026$). Youth placed with kin ($B = -.987; p = .028$), living in families with higher income ($B = -.236; p = .013$), and living in a household with more children adopted or under guardianship ($B = -.348; p = .019$) all had fewer internalizing behaviors. On the other hand, youth with a pre-intervention out-of-home placement history ($B = 1.938; p = .000$) and more post-permanency service needs ($B = .346; p = .000$) were at greater risk of exhibiting more internalizing behaviors. Finally, youth who were adopted ($B = -.809; p = .009$), compared to youth who were in guardianship placement, exhibited fewer internalizing behavior.

Despite the non-significance of the intervention variable on the outcome, the independent variables in the multivariate OLS regression model accounted for 38.6% of the variance in internalizing behaviors, and the model was statistically significant [$F(18, 399) = 13.93, p < .001$].

Impacts of APAL Program Assignment on Post-Intervention Caregivers' Commitment

As hypothesized, being assigned to the APAL program was significantly associated with higher levels of caregiver commitment ($B = .977$; $p = .005$), when controlling for the effects of other ecological factors. Specifically, youth assigned to the APAL group exhibited an average of .977 higher scores on caregivers' commitment than those in the comparison group.

In addition, some covariates were associated with caregivers' commitment. Youth attending school regularly tended to have higher levels of caregiver commitment ($B = 1.979$; $p = .005$). Surprisingly, youth placed with kin was associated with a lower caregiver commitment score ($B = -.866$; $p = .043$), and larger household size was related to higher levels of caregivers' commitment ($B = .196$; $p = .018$). Expectedly, a pre-intervention out-of-home placement ($B = -2.043$; $p = .001$) and a higher number of needs for post-permanency services ($B = -.304$; $p = .002$) were associated with lower caregivers' commitment. Finally, youth who were adopted had a higher caregiver commitment to them than youth who were taken into guardianship ($B = .767$; $p = .021$).

The independent variables in the multivariate OLS regression model accounted for 30.4% of the variance in caregivers' commitment, and the model was statistically significant overall [$F(18, 392) = 5.70$, $p < .001$].

Impact of APAL Program Assignment on Post-Intervention Out-of-Home Placement

Based on the descriptive statistics, only 33 out of the 439 youth (8.19%) had ever been placed out of home after they were assigned to receive the APAL services. Since there was little variation in the out-of-home placement variable, categories of some of the predictors had zero cells and multicollinearity occurred (Hosmer & Lemeshow, 2006). These problems made it impossible to estimate the effects of APAL assignment on out-of-home placement. Therefore, the

results of this multivariate logistic analysis are not reported. I then conducted a chi-square test to explore whether APAL assignment was associated with post-intervention out-of-home placement without controlling for any covariate. Results indicated that even though youth in the APAL group had a lower out-of-home placement rate than youth in the comparison group, group assignment had no significant relation with the outcome (6.37% vs. 9.81%) ($\chi^2 = 1.72$, $df = 1$, $p = .26$).

Table 4. Weighted Multivariate Regression Analysis of APAL Assignment on Youth's Behavior Problems and Caregivers' Commitment (ITT analysis)

Variable	Externalizing Behaviors (N=417; population size=3774)			Internalizing Behaviors (N=417; population size=3774)			Caregivers' Commitment (N=410; population size=3717)		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Independent variable									
APAL assignment	-1.303	.497	.009	-.468	.314	.137	.977	.347	.005
Covariates									
Child and family characteristics									
Child's age at study	-.360	.158	.024	-.233	.094	.014	.006	.107	.957
Race/ethnicity (African American)									
White	-.349	1.080	.747	-.313	.661	.637	.942	.550	.088
Hispanic	-3.623	1.134	.002	-1.723	.538	.001	.070	1.008	.945
Disability	.950	.537	.078	.918	.340	.007	.149	.399	.710
Attending school regularly	-1.949	.889	.029	-1.452	.648	.026	1.979	.706	.005
Kinship placement	-1.170	.624	.062	-.987	.446	.028	-.866	.428	.043
Caregiver married	.411	.635	.518	.433	.411	.293	-.322	.428	.452
Family income	-.342	.147	.021	-.236	.094	.013	.119	.111	.285
Household size	.022	.170	.895	.139	.100	.166	.196	.082	.018
Number of children were adopted/under guardianship	-.064	.248	.797	-.348	.148	.019	-.046	.146	.753
Microsystem									
Pre-intervention out-of-home placement	2.533	.643	.000	1.938	.493	.000	-2.043	.612	.001
Post-permanency service needs	.584	.100	.000	.364	.643	.000	-.304	.099	.002
Mesosystem									
Birth family contact	.654	1.008	.517	.166	.643	.797	.187	.591	.752
Exosystem									
Informal social support	.010	.020	.604	.007	.013	.593	.020	.015	.171
Monthly subsidy	1.811	1.543	.241	1.510	.962	.117	.062	1.578	.968
Medical card/insurance	-2.484	1.355	.067	-1.139	.965	.239	-1.198	1.445	.408
Macrosystem									
Permanency type (guardianship)									
Adoption	-1.003	.463	.031	-.809	.306	.009	.767	.330	.021
Constant	15.581	3.317	.000	8.277	2.040	.000	25.321	2.265	.000
R ²	.351			.386			.304		
F	F(18, 399) = 13.80, <i>p</i> < .001			F(18, 399) = 13.93, <i>p</i> < .001			F(18, 392) = 5.70, <i>p</i> < .001		

Note. Reference categories are in parentheses. SE = standard error

Effects of APAL Program Receipt on Outcomes

Impacts of APAL Program Receipt on Post-Intervention Externalizing Behaviors

As hypothesized, receiving the APAL program was significantly associated with lower scores on youth's externalizing behaviors ($B = -1.355$; $p = .018$), when simultaneously considering the effects of covariates (see Table 5). Specifically, youth who received the APAL services had on average 1.355 lower externalizing behavior scores than youth who did not receive the APAL services.

Some covariates were significantly associated with youth externalizing behavior. Very similar to the findings in the ITT sample, older age, Hispanic youth, compared to African American youth, attending school regularly, and having higher family income, were associated with fewer externalizing behaviors. On the other hand, youth with a pre-intervention out-of-home placement and more post-permanency service needs were more likely to display externalizing behaviors. The coefficient for the relation between placement with kin and externalizing behavior was similar to the ITT analysis and almost reached statistical significance at the .05 level ($B = -1.170$; $p = .062$). However, in the TOT analysis this relation was statistically significant ($B = -1.828$; $p = .011$). Unlike the ITT analysis, permanency type was not significantly related to the outcome.

The independent variables in this multivariate OLS regression model accounted for 40.2% of the variance in externalizing behaviors, and the model was statistically significant overall [$F(18, 286) = 12.54$, $p < .001$].

Impacts of APAL Program Receipt on Post-Intervention Internalizing Behaviors

Contrary to my hypothesis, despite the negative relation between APAL receipt and internalizing behaviors ($B = -.423$; $p = .253$), receiving the APAL services was not statistically

significantly associated with fewer youth's internalizing behaviors, after taking into consideration the effects of the covariates (see Table 5).

Similar to the ITT sample, older children, being Hispanic, than African-American, regular school attendance, placed with kin, higher family income, and families with a higher number of children adopted or under guardianship, were linked with lower internalizing behavior scores. On the other hand, youth with a pre-intervention out-of-home placement and more post-permanency service needs were at greater risk of presenting more internalizing behaviors. Unlike the ITT analysis, disability and being adopted, versus being taken into guardianship, were not statistically related with the outcome.

Consistent with the ITT sample, despite the non-significance of the relationship between receiving the APAL program and internalizing behaviors, the independent variables in the multivariate OLS regression model accounted for 42% of the total variance in internalizing behaviors, and the model was statistically significant [$F(18, 286) = 12.06, p < .001$].

Impacts of APAL Program Receipt on Post-Intervention Caregivers' Commitment

As hypothesized, participants receiving the APAL program demonstrated significantly higher levels of caregiver commitment than those in the comparison group ($B = .870; p < .018$), when simultaneously considering the effects of the covariates (see Table 5). Specifically, families who received the APAL services had an average of .870 higher caregivers' commitment scores than families who did not receive the intervention.

Similar to the ITT sample, youth attending school regularly, higher family income, and larger household size were associated with higher caregivers' commitment scores; whereas youth with a pre-intervention out-of-home placement and more post-permanency service needs were associated with lower levels of caregivers' commitment. Unlike the ITT analysis, kinship

placement status and permanence type were not statistically significantly related with the outcome.

Consistent with the ITT analysis, the independent variables in this model accounted for 36.1% of the total variance in the caregivers' commitment, and the model was statistically significant [$F(18, 280) = 5.31, p < .001$].

Impact of APAL Program Receipt on Post-Intervention Out-of-Home Placement

The results of the multivariate logistic model estimating the effects of the APAL program receipt on out-of-home placement were not reported for the same reasons provided in the previous results section for the ITT analysis. I further conducted a chi-square test to explore whether receiving APAL was related with post-intervention out-of-home placement. Results found that even though youth receiving APAL services had a lower out-of-home placement rate than youth not receiving the services, no significant relation was detected between receiving APAL program and out-of-home placement (4.79% vs. 10.50%) ($\chi^2 = 2.99, df = 1, p = .10$).

Table 5. Weighted Multivariate Regression Analysis of APAL Receipt on Youth's Behavior Problems and Caregivers' Commitment (TOT analysis)

Variable	Externalizing Behaviors (N=304; population size=2843)			Internalizing Behaviors (N=304; population size=2843)			Caregivers' Commitment (N=298; population size=2800)		
	B	SE	Sig.	B	SE	Sig.	B	SE	Sig.
Independent variable									
APAL receipt	-1.355	.571	.018	-.423	.369	.253	.870	.367	.018
Covariates									
Child and family characteristics									
Child's age at study	-.485	.167	.004	-.299	.107	.005	.095	.106	.372
Race/ethnicity (African American)									
White	.024	1.182	.984	-.425	.681	.533	.605	.591	.307
Hispanic	-3.162	1.135	.006	-1.919	.598	.001	-.576	1.183	.627
Disability	.481	.581	.408	.710	.404	.080	.486	.419	.247
Attending school regularly	-2.465	.929	.008	-2.201	.673	.001	1.831	.807	.024
Kinship placement	-1.828	.710	.011	-1.467	.532	.006	-.772	.504	.127
Caregiver married	.425	.738	.565	.596	.462	.198	-.519	.462	.263
Family income	-.427	.171	.013	-.302	.109	.006	.247	.122	.045
Household size	.037	.195	.850	.100	.099	.312	.194	.085	.023
Number of children were adopted/under guardianship	-.087	.280	.757	-.317	.155	.041	-.138	.167	.411
Microsystem									
Pre-intervention out-of-home placement	1.886	.700	.007	1.865	.572	.001	-1.997	.685	.004
Post-permanency service needs	.714	.102	.000	.376	.073	.000	-.449	.103	.000
Mesosystem									
Birth family contact	.805	1.139	.480	.466	.714	.514	.245	.629	.697
Exosystem									
Informal social support	.022	.023	.341	.005	.015	.709	.009	.018	.630
Monthly subsidy	1.226	1.521	.421	1.644	.968	.091	.754	1.540	.625
Medical card/insurance	-2.444	1.395	.081	-.953	.999	.340	-1.221	1.466	.406
Macrosystem									
Permanency type (guardianship)									
Adoption	-.907	.507	.074	-.686	.350	.051	.638	.365	.081
Constant	18.585	3.480	.000	10.059	2.294	.000	23.902	2.208	.000
R ²		.402			.420			.361	
F	F(18, 286) = 12.54, <i>p</i> < .001			F(18, 286) = 12.06, <i>p</i> < .001			F(18, 280) = 5.31, <i>p</i> < .001		

Note. Reference categories are in parentheses. SE = standard error

Effect Sizes

Effect sizes are calculated in this study to describe the magnitude of the APAL program effects and to make the outcomes comparable for future post-permanency program evaluations. An effect size delineates how many standard deviations' difference there is between the means of the APAL group and the comparison group (Rossi, Lipsey, & Freeman, 2004). Using the formula for regression-based effect sizes for quasi-experimental studies developed by Hombrados and Waddington (2012) (see Appendix B), I calculated the effect size of the APAL program on externalizing behaviors and caregiver commitment, the two outcomes that were statistically significantly related to the program.

For the ITT sample, the effect size of being assigned to the APAL program on externalizing behaviors is $-.231$, and the effect size of being assigned to this program on caregiver commitment is $.242$. For the TOT sample, the effect size of receiving the APAL program on externalizing behaviors is $-.280$, and the effect size of receiving this program on caregiver commitment is $.283$. Although the regression coefficient for the relationship between the APAL assignment and externalizing behavior is very similar to that of the APAL receipt and externalizing behavior (-1.303 vs. -1.355), and the regression coefficient for the relationship between the APAL assignment and caregiver commitment is larger than that of the APAL receipt and caregiver commitment ($.977$ vs. $.870$), these are not standardized comparisons adjusting for sample size and standard deviation. The standardized measure of the effect size indicates that receiving the APAL program has a larger impact on externalizing behaviors and caregiver commitment than does APAL assignment. However, since the two independent variables were not associated with internalizing behaviors and the associations between these variables and out-

of-home placement could not be established, these results partially support the hypothesis that the effect of the TOT estimate would be larger than that of the ITT estimate.

Summary

Consistent with hypothesis 1, results from the ITT analysis indicate that being assigned to the APAL program is significantly associated with reduced youth's externalizing behaviors and higher levels of caregiver's commitment. The effect sizes of APAL assignment on externalizing behaviors and caregiver commitment are $-.231$ and $.242$, respectively. Contrary to this hypothesis, APAL assignment did not significantly reduce youth's internalizing behaviors. Given the low occurrence of out-of-home placements, the relation between program assignment and out-of-home placement could not be established.

Consistent with hypothesis 2, results from the TOT analysis revealed that receiving the APAL program is significantly associated with fewer youth's externalizing behaviors and greater caregivers' commitment to the youth. The effect sizes of APAL receipt on externalizing behaviors and caregiver commitment are $-.280$ and $.283$, respectively. However, contrary to this hypothesis, APAL receipt is not associated with a significantly lower level of youth's internalizing behaviors. Similar to the ITT analysis, the little variation in post-intervention out-of-home placement made it impossible to detect any significant relation between the APAL program and out-of-home placements.

In addition, I hypothesized that the effects of APAL receipt on the outcomes will more likely be statistically significant or larger than the corresponding effects of the ITT analysis. Although in both analyses the independent variables are statistically significantly related to the same outcomes, the effect sizes demonstrate that the APAL program effects on externalizing behaviors and caregiver commitment are larger. Therefore, the hypothesis is supported.

SEM Analysis

Measurement Model

Confirmatory factor analysis yielded three interpretable factors consisting of perceived demands of youth care or needs, behavior problems, and caregiver commitment for the 13 observed indicators. Table 6 describes the observed indicators for each latent construct and their corresponding internal-consistency reliabilities (R^2) and standardized factor loadings. A majority of them indicated a good measurement model. Indicators of behavior problems had satisfactory levels of reliability, indicating that they measured their corresponding latent constructs with relatively less error and more consistently than perceived demands of youth care or needs and caregiver commitment. All of the items loaded significantly on their respective scale in the expected direction, suggesting that they were valid indicators of their latent constructs. Behavior problems accounted for 10% of the variance in the items, caregiver commitment accounted for 31% of the variance in the items, and perceived demands of youth care or needs accounted for 15% of the variance in the items. With the exception of the chi-square statistic ($\chi^2[97, N = 439] = 457.984, p < .001$), the measurement model provided an adequate fit to the data: RMSEA = .050, CFI = .912, TLI = .907, and WRMR = 1.015.

Table 6. Description of Latent Constructs and Factor Loadings for Each Corresponding Indicator

Factors and Indicators	Reliability (R²)	Factor Loading
Perceived Demands of Youth Care or Needs		
Behavior needs (1=less needs, 3=more needs)	.68	.71
Educational needs (1=less needs, 3=more needs)	.32	.63
Medical needs (1=less needs, 3=more needs)	.20	.75
Transporting needs (1=less needs, 3=more needs)	.17	.77
Behavior Problems		
Externalizing behaviors (0,17)	.98	.95
Internalizing behaviors (0,10)	.73	.95
Caregiver Commitment		
I would end this adoption/guardianship if I could (1=strongly agree, 5=strongly disagree)	.85	.76
I feel pleasure in parenting my child (1=strongly disagree, 5=strongly agree)	.78	.70
I always feel angry with my child (1=strongly agree, 5=strongly disagree)	.78	.65
I am able to manage my child's behavior (1=strongly disagree, 5=strongly agree)	.97	.75
I feel confident that I can meet my child's needs (1=strongly disagree, 5=strongly agree)	.67	.57
I was hesitant to enforce rules (1=often, 3=never)	.78	.46
My family's adjustment to the adoption/guardianship was smooth (1=disagree, 3=agree)	.65	.71

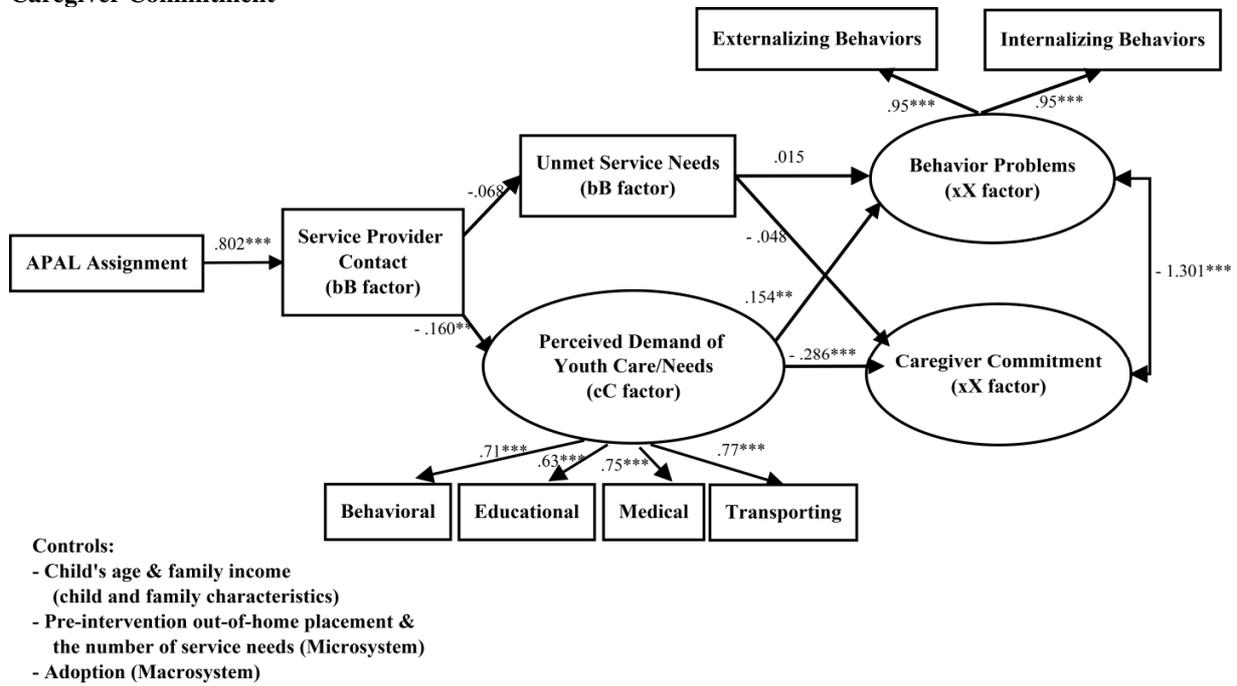
Test of Structural Model

With the exception of the RMSEA (.048), results of the hypothesized structural model displayed in Figure 3 demonstrate a poor fit to the data ($\chi^2[267, N = 423] = 513.282, p < .001$, CFI = .834, TLI = .852, and WRMR = 1.803), primarily due to the large number of covariates placed into the model. The model modification indices provided in Mplus 6.1 suggested that if some parameters were freed from estimation, the model fit would be improved. Therefore, non-significant paths from covariates to mediators (child's gender, race, and disability) and to outcomes (caregivers' education, number of children adoption/under guardianship, birth family contact, monthly subsidy, and medical card) were incrementally deleted to attain a good model fit. As the chi-square test statistic is biased towards large sample size, the model did not produce a non-significant chi-square test result ($\chi^2[140, N = 422] = 218.619, p = .000$). However, other model fit indices provided evidence that the revised hypothesized model fit the data well, with

the RMSEA (.036) lower than .05, CFI (.938) and TLI (.914) greater than .90, and WRMR (.923) lower than 1. The model accounted for 37% of the variance in behavior problems and 25% of the variance in caregiver commitment.

The standardized coefficients with weighted least squares estimation for the effects of the APAL program assignment on behavior problems and caregiver commitment, mediated through provider contact, unmet service needs, and perceived demands of youth care or needs, appear in Figure 3. As hypothesized, participants assigned to the APAL program group had an increased likelihood of being contacted by service providers ($\beta = .802, p < .001$); and those contacted by the service providers were more likely to exhibit a lower perceived demand of youth care or needs ($\beta = -.160, p < .01$). Perceived demands of youth care/needs had a positive relationship with behavior problems ($\beta = .154, p < .01$) and had a negative relationship with caregiver commitment ($\beta = -.286, p < .001$). Contrary to the hypothesized model, no significant relations were found between service provider contact and unmet service needs, and unmet service needs and behavior problems and caregiver commitment. In other words, the relationships between APAL program assignment and behavior problems and caregiver commitment were mediated through provider contact, which in turn lowered perceived demand of youth care/needs.

Figure 3. Standardized Coefficient Estimates for the APAL Program Effects on Behavior Problems and Caregiver Commitment



Note. Due to the limited space in the figure, indicators for caregiver commitment and their corresponding relations with the latent variable are not presented. Detailed description of these indicators and each of their factor loadings were presented in Table 4 in this chapter.

* $p < .05$; ** $p < .01$; *** $p < .001$

The standardized coefficients for the relationships among all the variables in the SEM including the control variables that were significantly related with any mediating variables or outcomes are presented in Table 7. Among these control variables, caregivers of older youth were associated with a lower perceived demand of youth care/needs ($\beta = -.125, p < .05$), thus indirectly improving youth's behavior problems and enhancing caregiver commitment. Additionally, pre-intervention out-of-home placement ($\beta = .118, p < .05$) and higher number of service needs ($\beta = .459, p < .001$) were positively associated with a higher perceived demand of youth care or needs, which indirectly leads to more youth's behavior problems and lower caregiver commitments. As to the direct influence from covariates to the behavior problems, having a pre-intervention out-of-home placement history ($\beta = .288, p < .001$) and more post-

permanency service needs ($\beta = .348, p < .001$) directly lead to more behavior problems; whereas higher family income ($\beta = -.110, p < .01$) and being adopted ($\beta = -.110, p < .01$), compared with being taken into guardianship, directly result in fewer behavior problems. Finally, pre-intervention out-of-home placement ($\beta = -.244, p < .001$) was directly related with lower levels of caregiver commitment, but higher family income ($\beta = .197, p < .001$) and being adopted ($\beta = .159, p < .01$), rather than being taken into guardianship, were related with higher levels of caregiver commitment.

Table 7. Standardized Parameter Estimates for Structural Model of APAL Program Effects on Behavior Problems and Caregiver Commitment

Variable	Provider Contact	Unmet Service Needs	Perceived Demands	Behavior Problems	Caregiver Commitment
APAL assignment	.802***	–	–	–	–
Child's age	.052	.021	-.125*	-.089	-.042
Pre-intervention out-of-home placement	.011	-.037	.118*	.288***	-.244***
The number of service needs	-.007	.459***	.459***	.348***	-.116
Family income	.017	.023	-.023	-.110**	.197***
Adoption	-.023	-.001	.032	-.110**	.159**
Provider contact	–	-.068	-.160**	–	–
Unmet service needs	–	–	–	.015	-.048
Perceived demands	–	–	–	.154**	-.286***
R^2	.207	.141	.311	.447	.386

* $p < .05$; ** $p < .01$; *** $p < .001$.

Standardized direct, indirect, and total effects of the intervention variable, significant covariates, and mediating variables on the two outcomes are displayed in Table 8. As indicated, the APAL intervention had a significant total effect on improving youth behavior problems ($\beta = -.115, p < .01$), which was all produced by the indirect effects through provider contacts and perceived demands of youth care or needs. Being contacted by a service provider had a significant total effect on reducing youth behavior problems ($\beta = -.143, p < .05$), which was all produced by the mediating effects of perceived demands of youth care or needs. The mediating variable of perceived demands ($\beta = .154, p < .001$) led to a significant total effect on youth behavior problems. Covariates generating significant negative total effects on youth behavior

problems included older youth, higher family income, and being adopted instead of being taken into guardianship; and covariates generating significant positive total effects on the behavior problems consisted of pre-intervention out-of-home placements and higher numbers of service needs. The standardized total coefficient estimates demonstrate that the pre-intervention out-of-home placement and more service needs produced larger impacts on behavior problems than other variables.

Similarly, APAL assignment had a significant total effect on caregiver commitment ($\beta = .170, p < .01$), and this effect was all mediated through the effect of provider contacts and perceived demands of youth care or needs. Being contacted by a service provider ($\beta = .211, p < .01$) had a significant total effect on promoting caregiver commitment, which was produced by the mediating effect of perceived demands of youth care or needs. The mediator of the perceived demands of youth care or needs ($\beta = -.286, p < .001$) had a negative total effect on caregiver commitment. Among the covariates, higher family income and being adopted, compared with being taken into guardianship, had significant positive total effects on caregiver commitment; whereas pre-intervention out-of-home placements and more service needs led to a negative total effect on caregiver commitment. Of the total effects on caregiver commitment, a higher perceived demand of youth care or needs, pre-intervention out-of-home placement, and the number of service needs created relatively larger total effects than other variables.

Table 8. Standardized Direct, Indirect, and Total Effects on Behavior Problems and Caregiver Commitment

Variable	Behavior Problems			Caregiver Commitment		
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
APAL assignment	-	-.115**	-.115**	-	.170**	.170**
Child's age	-.090*	-.026	-.116**	-.042	.045	.003
Pre-intervention out-of-home placement	.288**	.016	.304***	-.244*	-.030	-.274***
The number of service needs	.348*	.079*	.427***	-.116***	-.155***	-.271***
Family income	-.110*	-.005	-.115**	.197**	.009	.206***
Adoption	-.110	.009	-.101**	.159**	-.014	.145**
Provider contact	-.117*	-.026	-.143*	.162*	.049*	.211**
Unmet service needs	.015	-	.015	-.048	-	-.048
Perceived demands	.154**	-	.154**	-.286***	-	-.286***

* $p < .05$; ** $p < .01$; *** $p < .001$.

Test of Competing Models

To determine if the revised hypothesized model fits the data better than some other models, several competing models were tested using the Satorra-Bentler scaled chi-square difference statistic. The first step to conduct this difference test is to estimate the full model (in this case, the revised hypothesized model), and then use a model trimming strategy. The model fitness of the revised hypothesized model and three competing models were then compared. These competing models include: (1) A Mediation 2 model in which effects of APAL assignment are mediated by provider contacts and a perceived demand of youth care or needs. Note that the test results were the same if unmet service needs was chosen as the mediator instead of perceived demands. (2) A Mediation 1 model in which effects of APAL assignment are mediated only by provider contacts; and (3) a direct effects model in which APAL assignment affects the outcomes directly.

As presented in Table 9 and reported previously, the revised hypothesized model provided an adequate fit to the data with the CFI and TLI higher than .90, RMSEA lower than .05, and WRMR lower than 1. The Satorra-Bentler scaled chi-square difference test between the revised hypothesized model and the Mediation 2 model was significant ($\Delta \chi^2 = 39.261, p < .05$), suggesting that the Mediation 2 model simplified the revised hypothesized model too much; and,

therefore, the revised hypothesized model should be retained (Kline, 2005). This is because a statistically significant increase in the chi-square value indicates a poorer model fit compared with the previous model. Additionally, the lower value of CFI and TLI and higher value of RMSEA and WRMR of the Mediation 2 model, compared with those of the hypothesized model, supported the better model fit of the revised hypothesized model.

Similarly, the null hypothesis that the Mediation 2 model and the Mediation 1 model fit the data equally well was rejected by the chi-square difference test ($\Delta \chi^2 = 46.923, p < .05$). The higher value of the CFI and TLI and lower value of the RMSEA and WRMR of the Mediation 2 model further support the better fit of the Mediation 2 model. Finally, the chi-square difference test provides convincing evidence that the Mediation 1 model fit the data better than the direct effects model, as indicated by the significant chi-square difference test statistic ($\Delta \chi^2 = 89.102, p < .05$). The larger value of CFI and TLI and smaller value of WRMR in the Mediation 1 model also support the better fit of this model than the direct effects model.

Because the revised hypothesized model fit better than the Mediation 2 model, the Mediation 2 model fit better than the Mediation 1 model, and the Mediation 1 model fit better than the direct effects model, it is reasonable to conclude that the revised hypothesized model fit the data better than any of these competing models.

Table 9. Test of Competing Models for the APAL Program Effects on Behavior Problems and Caregiver Commitment

Competing Models	χ^2	df	Δ df	$\Delta \chi^2$	CFI	TLI	RMSEA	WRMR
Revised hypothesized	218.619	140	-	-	.938	.914	.036	.923
Mediation 2	261.821	148	8	39.261*	.910	.882	.043	1.057
Mediation 1	409.236	156	8	46.923*	.869	.846	.064	1.445
Direct effects	429.478	163	7	89.102*	.840	.821	.069	1.503

Note. $\Delta \chi^2$ is the Satorra-Bentler scaled chi-square difference test statistic, which tests the null hypothesis that the two nested models are identical. Mediation 2 model includes the mediators of the provider contact and perceived demands of care/needs. Mediation 1 model includes only the mediator of provider contact. Direct effects model includes none of the mediators, and only the independent variables and the outcomes.

* $p < .05$.

Summary

Although the hypothesized structural model provided a poor fit to the data, the revised model excluding insignificant paths from the covariates to the mediators or the outcomes yielded an adequate model fit, compared with the competing models. Consistent with hypothesis 3, families who were contacted by service providers had a decreased perceived demand of youth care or needs, compared to families who were not contacted, as a result of a higher likelihood of being assigned to the intervention group. In other words, provider contact, which in turn decreased perceived demands of youth care/needs, explained the effects of APAL assignment on youth behavior problems and caregiver commitment. Because provider contact did not reduce the number of unmet service needs significantly, unmet service needs was not a mediator. Therefore, hypothesis 3 was partially supported.

CHAPTER 5

DISCUSSION

This chapter first summarizes the multivariate and SEM results. It then discusses the findings of the current study and compares them with past research and theories. The limitations of the study are then addressed, which is followed by providing social work practice, program evaluation, and child welfare policy and agency implications. Finally, directions for future research are offered.

Summary of the Findings

Using data from a quasi-experimental design program evaluation, the purpose of this study was to test hypotheses related to (1) the impact of the APAL program assignment and receipt on youth behavior problems, caregivers' commitment, and out-of-home placement; and (2) identifying the mediating effects of provider contact, perceived demands of youth care or needs, and unmet service needs that link assignment to the APAL intervention to the outcomes. The study not only provides evidence of the effects of a community outreach post-permanency program on adoption/guardianship outcomes, but also reveals the mediating pathways that suggest the ways in which the program can increase the well-being of youth involved in post-permanency adoptions and guardianships.

Findings from the multivariate analysis suggest that the APAL program can reduce youth externalizing behaviors and increase caregivers' commitment to the youth. Consistent with hypothesis 1, compared to those assigned to the comparison group, youth who were assigned to the APAL group have an average of 1.30 lower externalizing behavior scores (effect size = -.23). Additionally, families assigned to the APAL group have an average of .98 higher caregivers' commitment scores than families who were in the comparison group (effect size = .24). Also

consistent with hypothesis 2, youth who actually received the APAL intervention have an average of -1.36 lower scores on externalizing behavior (effect size = -.28), and exhibit an average of .87 higher caregiver commitment scores (effect size = .28), compared to those who did not receive the program. Consistent with hypothesis 2, the effect sizes indicate that receiving the APAL program has larger impacts on externalizing behaviors and caregiver commitment than does APAL assignment. However, the differences are not large.

Despite the non-significance of the hypothesized program effects on internalizing behavior and the inability to establish a relationship between the APAL program and out-of-home placement, the statistically significant results imply a positive role of the community outreach program in promoting adoption/guardianship outcomes. According to the general rule for interpreting effect sizes proposed by Cohen (1988) (a small effect size is .20, a medium effect size is .50, and a large effect size is .80), the effect sizes for the relationships between the APAL program assignment and actual receipt and the outcomes are all small. However, given that the post-permanency program is a newly developed program, the small effect sizes detected in this study might have potential implications for post-permanency families who strive to achieve positive adoption/guardianship outcomes.

Consistent with hypothesis 3, results of the SEM analysis indicate that service provider contacts can assist in reducing caregivers' perceived demands of youth care or needs, which in turn leads to fewer behavior problems and enhanced caregiver commitment. Contrary to the hypothesized paths, a reduction of unmet service needs is not associated with fewer behavior problems and higher caregiver commitment. That is, all the total effects of assignment to the APAL program on behavior problems and caregiver commitment are explained by provider

contacts and a decrease of caregivers' demand of youth care or needs, not by the reduction of unmet service needs.

Discussion

Study Findings

Both the ITT and TOT analysis provide evidence that the APAL program can ameliorate youth's externalizing behaviors. These findings are echoed in previous studies undertaken by Dhami et al. (2007) and Howard and Smith (1995), which also suggest that post-permanency services can assist parents in better understanding the child's needs and raising their awareness of using services to address children's externalizing and acting-out behaviors. The positive effect of the APAL intervention on this outcome indicates that providing needs assessments and referral services to families with youth who are adopted or placed into guardianship can assist parents in accessing services to improve acting-out or aggressive behaviors. However, contrary to what Howard and Smith (1995) found, this study does not detect a positive role of the APAL program in reducing youth's internalizing behaviors. A possible explanation for this result might be that caregivers might pay more attention to children's externalizing behaviors because they are more difficult to handle, and they are less likely to report internalizing behaviors because they are less disturbing to caregivers' lives than externalizing behaviors.

The fact that families who were assigned to and received the APAL program tend to exhibit higher caregivers' commitment than the comparison groups, reiterates the importance of formal social support in contributing to caregivers' adaptive mental mechanisms. These findings support Kessler and Essex's (1982) assertion that social support can promote individual's psychological well-being when experiencing stress by assuring them of the availability of needed assistance and resources. In addition, although no prior studies have examined the impact of

post-permanency services on parents' commitment to the child directly, previous post-permanency program evaluations offer similar empirical evidence that receipt of post-placement services enhance parents' closeness to the child (Dhami et al., 2007), family functioning (Lernerz et al, 2006), and family cohesion and adaptability (Lahti, 2006), indicating parents' high propensity and willingness to maintain the placement.

Although previous studies (Avery, 2004; Berry et al., 2006, Smith, 2006) have found that post-permanency services are effective in preventing post-intervention out-of-home placement, this study was unable to estimate the relations between APAL program assignment and receipt and out-of-home placement. The inability to estimate these relations in the multivariate analyses was due to the low percentage (8.2%) of youth who were placed out of home. However, the bivariate analyses revealed no relation between APAL assignment and receipt and out-of-home placement, suggesting that the APAL program is not effective in preventing such placements. Although the out-of-home placement rate four years after finalization in this study is even higher than that of the general population in Illinois, which was estimated to be 5% five years after adoption finalization (see Fuller et al., 2011), it is possible that the APAL program might decrease such placements over time.

From the SEM analysis, an interesting extension of this study to prior research is the significant mediating effect of provider contact and a perceived demand of youth care or needs on youth behavior problems and caregiver commitment. As a result of APAL assignment, service provider contact is more likely to occur, resulting in a decrease of perceived demands, which in turn reduces youth behavior problems and increases caregiver commitment. Although it was expected that those who were assigned to the intervention group were all contacted by a service provider, whereas those assigned to the comparison group were not contacted by a service

provider, the implementation integrity analysis detected some non-compliance to the assignment. Nonetheless, the APAL assignment significantly predicts provider contact in an expected direction ($\beta = 0.802, p < .001$).

A lower perceived demand of youth care or needs serves as a second phase of the mediation, linking provider contact with the outcomes. The paths indicate that formal social support (exosystem) provided by the post-permanency service reduces youth behavior problems and enhances caregiver commitment by decreasing the caregivers' perceptions of the demands of caring for the youth within the home (microsystem). These findings are consistent with the ecological systems theory which suggests that a more distant environment can influence the developing person through its impact on proximal processes (Bronfenbrenner & Ceci, 1994). These findings also advance family stress-coping theory (McCubbin & Patterson, 1983) by demonstrating the role of family perceptions and appraisal in face of stress. Although the availability of social support can directly reduce stress and resolve family crisis, the results of this study suggest that the relation between family resources and outcomes might also be mediated through how the family interprets the current situation, and thereby influences the outcomes.

This study also adds to the post-permanency literature by showing a direct relation between perceived demands of youth care or needs and youth behavior problems. As opposed to previous studies that explored how children's behavior problems influence parenting stress, emotional drain, and parents' life satisfaction (Reilly & Platz, 2003; Wright & Flynn, 2006), this study provides empirical support to the transactional perspective proposed by Viana and Welsh (2010), who shed light on the important role of family perceptions on adoption adjustment. The current finding demonstrates that caregivers' perceptions of the demands of their caregiving role

is associated with youth's behavior outcomes, which suggests that parents' views of their parenting demands, including the impact of youth's behaviors on them, have a greater impact on adoption outcomes than the behaviors per se (Clark et al., 2006). In this study, caregivers' high perceived demand of youth care also tends to compromise their commitment to the placement, possibly because they lose confidence in themselves and experience few rewards from taking care of the youth.

One unexpected finding of the study is the non-significant mediating effect of unmet service needs on the outcomes. Although one objective of the APAL intervention is to provide families with appropriate referral services when they express service needs, the current findings indicate that families receiving the services are no more likely to present fewer unmet service needs than those not receiving the referral services. One possible explanation for this may be due to selection bias. Families who chose to be contacted by a service provider might be those who displayed higher service needs which were difficult to meet, thus decreasing the positive effect of APAL services. Another possible reason is that after the referral services, some families did not follow up with accessing them or were not successful in getting what they needed from the corresponding service agencies. These interpretations are congruent with studies pointing out the inadequacy of post-adoption services and inequity in service delivery (Ryan, Nelson, & Siebert, 2009), that services are provided at inconvenient times or locations (Dhami et al., 2007), or are non-responsive due to high caseloads of the staff (Festinger, 2002).

It is worth noting that a handful of covariates included in the regression and SEM analyses show significant relations with the outcomes. Unlike Wind and colleagues study (2007) which shows that families' service needs increase as children age, in this study children's age was negatively associated with perceived demands of youth care/needs and behavior problems.

This difference might be the result of age group differences between the two studies. The age group in Wind et al.'s study was less than 10 years old, and the age group in the current study was older than 12 years. This indicates that in the current study, the children resided in the families for a longer period and thus had more time to adjust to their current environments. The finding that Hispanic youth tend to have fewer behavior problems adds evidence to the argument that ethnic minority children are more likely to have a positive placement experience than White children (Webster et al., 2000). As one of the important concerns for caregivers is the youth's school performance (Howard & Smith, 2003), it is understandable that regular school attendance enhances levels of caregiver commitment, but it is unclear why school attendance would reduce youth behavior problems. Perhaps the two variables are correlated; the fewer behavior problems youth have, the more likely they will be in school. This study found that higher family income contributes to fewer externalizing behaviors, probably because having more income can allow the family to purchase the needed resources and support, which can alleviate youth problems. In the current study, an out-of-home placement history is consistently related to negative placement outcomes, which is consistent with past findings that previous out-of-home placements predict an increased likelihood of placement disruptions (Webster et al., 2000). The association between the number of service needs and youth externalizing behaviors confirmed Festinger's finding (2006), and the negative relation between service needs and caregiver commitment adds to the adoption literature on the importance of examining and addressing service needs to increase caregiver commitment. Finally, similar to a previous study (Howard et al., 2006), youth who were adopted tend to have more stable placements and higher levels of caregiver commitment to them than youth taken into guardianship. This finding might be the result of adoption

establishing a legally binding relationship due to the termination of parental rights, while legal guardianship can only establish a more lasting relationship.

Research Methodology

Given the detected imperfect compliance to treatment assignment, the question of whether the APAL program is effective for those who received the services cannot be answered by the ITT analysis, which answers the question of whether assignment to the intervention is related to the outcomes. Therefore, a TOT was used as a supplementary method to investigate the effect of APAL program receipt on the outcomes. However, this selection of a subset of families might have biased the estimates due to the participants' self-selection or caseworkers' selection factors (Testa, 2010). In this study, the TOT analysis might have downwardly biased the APAL program impacts because the families who complied with the treatment assignment might have been more likely to be experiencing family caregiver commitment problems and youth behavior problems, compared to those who declined to receive the APAL program. It is also possible that caseworkers tended to provide referral services to the families they perceived as having the greatest need for the services. Regardless of the ITT or TOT analysis, the results are very similar, including the effect sizes. This suggests that if the APAL program were to be initiated in an agency, regardless if some families refused to cooperate, it would be effective in reducing youth externalizing behaviors and increasing caregiver commitment. In addition, the findings are consistent with hypothesis 2 that the TOT findings would be larger than the ITT findings.

The implementation integrity assessment provides important information regarding the program implementation process. Since out of the 439 selected participants, only 121 of the 226 complied with the assignment to receive the APAL services and 195 of the 213 complied not to receive the APAL services, the compliance rate is 72%. This suggests that full compliance with

treatment assignment during program implementation within agencies is not the norm. In this study, both agency selection and participants' self-selection explain this compliance rate. Within the agency, the APAL workers were supposed to deliver APAL services to families according to the treatment protocol; however, they failed to contact all those families who were assigned to the treatment group and might have accidentally provided APAL services to 5 families who were assigned to the comparison group. On the other hand, for some families who received the invitation to participate in the APAL program, they self-selected not to participate because they might have thought they did not need the services; for others assigned to the comparison group, 13 of them received other community services similar to the APAL program. Perhaps these families had higher needs or the youth presented with more behavior problems.

Participants who received the APAL services did not show a high level of satisfaction, as only half of them rated the DCFS services as helpful. In addition, there was no significant difference in the satisfaction rating between families who received the APAL services and those who did not. These results might suggest that APAL services is a short time contact that did not leave a deep impression on families, and from their perspectives might not have provided adequate assistance to alleviate any problems they were experiencing.

Finally, there is little difference in the APAL program receipt effect between whether I treated the 13 cases who received similar services as crossovers or as comparison group compliers, suggesting the APAL program might not differentiate much from other community services that are provided to post-permanency families. In other words, the needs assessment and referral services are not a unique component within post-permanency services that could be distinguishable from treatment as usual.

Limitations of the Study

The current study contributes to understanding whether and how a community outreach post-permanency program impacts youth and families' post-adoption/guardianship adjustment. However, it bears some limitations that should be recognized.

First, although the research analyzed data from a study that applied a more rigorous design including age match and a six-month posttest than other post-permanency services program evaluations, it is a quasi-experimental study and not a classic randomized control experiment that necessitates pre-tests and a randomization process. The lack of a statistical equivalent comparison group fails to rule out possible confounding effects that might explain any observed treatment differences and cannot adjust for all pre-randomization selection biases. Therefore, I cannot infer causality, and I must be cautious in drawing any causal interpretations. In the Illinois PP-II survey, although the behavior problems and caregiver commitment outcomes were measured after the APAL was implemented, and were not measured before the treatment, I cannot attribute the improvement of any outcome to the intervention because other factors might explain these changes.

Second, this study used a TOT analysis to examine the effects of receiving the APAL services on the outcomes, and the subset analysis might pose sample selection bias because the subsample of compliers might not be representative of the original population. As discussed earlier, those who complied with receiving the services might over-represent families with more service needs or display more behavior problems, thus underestimating the treatment receipt effect. Possible remedies to address these sample selection biases include propensity score matching (see Guo, Barth, & Gibbons, 2006) or an instrumental variable approach (see Angrist et al., 1996). However, the moderate sample size of the study limits itself to achieve a reasonable or

good comparison between two equivalent groups, and the difficulty in justifying a perfect instrumental variable to purge the endogeneity in the treatment variable also makes the latter approach infeasible.

Third, the latent variables of the perceived caregiving demands of youth care or needs and the caregiver commitment outcome variable are not measured by previously tested instruments that have established validity and reliability with adoptive youth or youth taken into guardianship. The Cronbach's alpha was .68 and .73 for perceived caregiving demands and caregiver commitment, respectively, which might indicate some threats to the accuracy in measuring these latent constructs. Additionally, the study was based on caregivers' self-reports and only examined adoption/guardianship outcomes from caregivers' points of view. The lack of multiple data sources including children's and school teachers' perspectives, might lead to some biases in the findings.

Fourth, although I applied a comprehensive theoretical framework to review the ecological factors affecting post-permanency adjustment, I could not measure and include all the factors identified in the literature such as attachment in my models. This is because the study was dependent on the variables collected by the survey. Accordingly, the study does not provide a full understanding of how post-permanency services impact adoption outcomes in all levels of the ecological systems. Finally, the study sample on which this research was drawn was from the Chicago area, and the socio-demographic characteristics might be unique to this sample (consisted of older children, and African American children were overrepresented in the sample). Therefore, the results of this study might not generalize to other areas of Illinois outside of Chicago or other states unless the population characteristics are similar.

Implications

Despite the aforementioned limitations, findings of the current research suggest some insightful implications for child welfare practitioners, post-permanency program designers and deliverers, and child welfare policy makers to assist post-permanency youth and families in achieving positive adjustment to their new lives.

Practice Implications

This study provides evidence for the effectiveness of the APAL program for post-permanency families, and can inform post-permanency evidence-based practice. The findings suggest that practitioners who deliver on-going support to families when their adopted children enter into a more mature developmental phase can improve family functioning. Providing needs assessments for adopted children and their families and referring them to post-permanency services might be determined as important assessment and interventions to overcome the challenges in post-permanency life. As the study demonstrates that the APAL program is positively associated with reduced youth externalizing behavior problems and higher caregivers' commitment, the APAL services might be expanded to reach more adoptive families. However, since the APAL program effect is shown to be unrelated with internalizing behaviors and this study was unable to be established relations with out-of-home placement, future post-permanency programs offered to these families might make some modifications and adjustments. For example, treatment referrals specifically targeted to alleviating youth's depression or withdrawal problems could be added to the program. Or the program could have an extended timeline and be made available to families at different time points.

Given that provider contact is not associated with a reduction of unmet service needs, the APAL program assignment appears to be ineffective in linking families with needed post-

permanency services. This result might be because the workers' offers of assistance are inconsistent with the time in which the families face the greatest unmet needs. To better target families' needs for services, the DCFS post-adoption/guardianship unit might set up a hotline service to assist families with pressing problems as they occur. Additionally, to save additional cost of running the statewide program, it might be better to encourage caregivers to self-report their unmet needs when the DCFS conducts the annual recertification for a medical subsidy. Other reasons why provider contact might not be related to a decrease in unmet needs are because families do not follow up with the services; or when they do, they are insufficient to address their needs. If social workers were to follow up with the referral process by ensuring that caregivers who report unmet service needs actually received the services they needed, this might increase the effectiveness of the APAL program in reducing unmet service needs. In other words, different services providers could establish a coordinated system to enhance communication with one another so as to track clients' progress efficiently.

Since this study has identified the mechanisms through which APAL assignment appears to achieve two positive adoption/guardianship outcomes, these findings have important implications for practitioners to strengthen these components of post-permanency service delivery. The needs assessment and referral services from a caseworker make families aware of the availability of post-permanency services, which is helpful to reduce caregivers' perceived demands of caregiving burden and alleviate their stress. These changes in turn appear to result in fewer youth behavior problems and higher levels of caregivers' commitment. These findings inform practitioners that providing psychological or emotional support to caregivers by making them aware of the availability of services might be as important as instrumental support per se. In future post-permanency services, practitioners could work on this mediating factor

independently or incorporate the role of psychological support into other post-permanency programs by emphasizing that they are not abandoned in their journey, and they can access support when needed.

Program Evaluation Implications

The overall compliance to treatment assignment in the PP- II study aiming to evaluate the effectiveness of APAL program is 72%, indicating some lessons should be learned in future program evaluation. First, only 53% of participants assigned to the intervention received the APAL program, which indicates a significant number of families in the intervention group could not be reached for or they declined to receive the intended APAL services. According to my interview with the APAL program staff, the biggest problem in program delivery for the APAL agencies was that they could not contact the target families because the families did not inform the DCFS when they moved or updated their contact information. Future program evaluations should ensure at the beginning that they have correct contact information to connect with the targeted families or conduct a pilot survey to determine the response rate of those families before evaluating the program.

Among the 18 crossovers, actually 5 of them received APAL services, and the other 13 received other services that might or might not be similar to the APAL services. Also from the APAL staff's responses, some crossover happened because the sibling in the same household did get the service even though they were not assigned to the treatment group. The finding informs future program evaluators of the need to assist the deliverers of the program to strictly follow the treatment assignment protocol and avoid providing treatment to families in the comparison group. For some comparison group families who received services similar to the APAL program, they were encouraged to recall and describe exactly what services they received. This was done

to assist the program evaluator to assess the differences between the intended treatment and the other services when they conducted the outcome evaluation. All the measures suggested in this implementation process aim to enhance the treatment compliance rate, so that researchers are able estimate the program effect more accurately.

Additionally, to enhance the program satisfaction rate, program deliverers might need training on how to more effectively interact and communicate with the families within a short time. For example, APAL workers could clarify the purpose of the study at the beginning of the conversation because some families might mistake post-adoption services with child protective services which oversee their parenting (Schweiger & O'Brien, 2005). If deliverers could improve the interaction with families, they might be more satisfied with the service providers and more willingly to receive the services.

Child Welfare Policy and Agency Implications

The findings from this study inform child welfare policymakers that continuing support is essential and beneficial for post-permanency families to alleviate youth's behavior problems and enhance caregiver commitment when their children reach a more mature developmental stage. The support should include community outreach services. The recent Fostering Connections to Success and Increasing Adoptions Act of 2008 offers states federal support for post-permanency services to older youth (H.R. 6893/P.L. 110-351). It allows states to extend adoption and guardianship subsidies to age 21 under some circumstances. With the financial support, youth and their families might be able to afford many post-permanency services that are not included in the adoption/guardianship agreement.

Although the current study indicates that a needs assessment and service referrals are not directly related to decreasing the unmet needs of adopted youth and their families, the results of

the ITT analysis suggest that offering the APAL program at the agency level can be effective in reducing youth's behavior problems and promoting caregivers' commitment, even if many of the families fail to take advantage of the program. Therefore, the results suggest the need for current policy and funding frameworks to extend support services to these families years after adoption/guardianship finalization. Although the current study found no relationship between provider contact and unmet service needs, the SEM findings suggest that offering adoptive parents and legal guardians ongoing post-permanency support might decrease their perceived demands of youth care and needs, which in turn enhances caregiver commitment and youth's socio-emotional functioning. Finally, the study's findings encourage policymakers to provide additional resources and funding to design, implement, and evaluate post-permanency services to further inform child welfare agencies of the type of services or which component of the services are effective for which families.

Future Research

The limitations of the study previously discussed suggest possible direction for future research to enhance the internal, construct, and external validity of the post-permanency program evaluation. First, given the research design evaluating the APAL program was a two-group post-test only design, it failed to ensure an equivalence of the two groups due to a lack of randomization. In order to make a causal inference of this treatment, a randomized control experiment is needed for future research to enhance the internal validity.

Second, even though the suggested future evaluation applies a randomized trial, threats to the post-randomization process including self-selection bias, might still compromise the treatment effect estimates. Statistical controls could increase the validity of the treatment effect estimates. For example, propensity score matching could be used as a post-hoc strategy to match

the treatment group compliers with comparison group compliers to minimize observed and unobserved differences between the two groups. Of course, the sample size should be large enough to make a group match. Additionally, if researchers could determine a valid instrumental variable, the instrumental variable approach could also address the selection bias by purging the endogeneity of the treatment receipt variable (Angrist et al., 1996).

Third, in future post-permanency program evaluations, evaluators should make sure that the treatment protocol is followed and increase the participants' compliance to maximize the implementation integrity. For example, researchers could determine incentives to encourage as many families assigned to the intervention group to participate as possible, and determine methods to prevent participants assigned to the comparison group from receiving the services. Additionally, the low satisfaction rate of caregivers who received the APAL services suggests the need to conduct a qualitative study to provide an in-depth understanding of what the families liked and disliked about the services. Focus groups can also be conducted to seek participants' opinions on how to deliver a post-permanency program that could better address their unmet service needs and/or prevent out-of-home placement for their children.

Fourth, future program evaluations could include more standardized instruments to guarantee the construct validity of the variables. In this study, only the behavior problems outcome variable is based on a previously tested instrument. In future research, when developing the survey, researchers should locate and use as many standardized mediators and outcome measures as possible. Similar to the drawback pointed out in previous post-permanency program evaluations (see Gibbs et al., 2002), the out-of-home placement outcome in this study occurred infrequently, making it impossible to estimate the effect of the APAL program on this outcome.

Future research might consider the use of other proxy measures to replace out-of-home placement or track youth's placement stability over a longer period of time.

As previously acknowledged, this study is based on caregivers' self-reports of their youth's behavior problems, and this one source of information might bias the conclusion that the APAL program appears to be effective in reducing child behavior problems. Future studies might include and compare caregivers' reports with youth's self-reports and/or teachers' reports to enhance the validity. Finally, the study drew a sample from the Chicago area and the results might be only applicable to the Chicago area. To increase external validity of the APAL program effects, the program might be also implemented in other areas of the State of Illinois or other states or with children of other age groups to determine whether the current results are generalizable to different post-permanency populations.

Summary and Contributions

Using primary data collected by a quasi-experimental design, this study investigated the effects of the Illinois APAL program, a community outreach post-permanency services, on youth's behavior problems, caregiver commitment, and out-of-home placement. The study also examined the mechanisms through which the APAL program affects caregivers' commitment and youth behavior problems. First, the study contributes to the post-permanency literature by offering evidence of the effects of the post-permanency services on youth and families. By using an ITT analysis, the study detected that assignment to the APAL group is associated with fewer externalizing behavior problems and higher levels of caregivers' commitment. Results from the TOT analysis also demonstrated these relationships.

Second, the study suggests the importance of using a program logic model and an appropriate theoretical framework when exploring the mechanisms that explain how a program is

effective in achieving its desired outcomes. Identifying the process through which the program works is beneficial for future program designers and child welfare agencies, as they can incorporate the effective components when providing services to post-permanency families. However, this goal should be guided by a program logic model which lays out the assumptions and logic of how a program is intended to work. The study findings also advance family stress-coping theory by identifying the role of caregivers' perceptions of parenting demands in enhancing their commitment to the adopted youth or youth taken into guardianship and in decreasing the youth's behavior problems.

Third, this study offers an example in post-permanency program evaluation of how to conduct a process evaluation by using an implementation integrity analysis. Consistent with the five dimensions in an integrity analysis, this study specifically examined the exposure, responsiveness, and program differentiation aspects of the APAL program evaluation. This information contributes to the evaluation literature on the importance of incorporating a process evaluation to fully understand how the program was actually delivered. For example, by knowing the compliance rate is 72%, the study demonstrated the importance of applying different analytical approaches to estimate the program's effects.

Finally, the study offered some insightful implications for future post-permanency program designers and deliverers. Given that the APAL program was associated with only two of the four outcomes and one of the outcomes could not be established, future post-permanency services might be strengthened by incorporating a direct treatment component into the services. Additionally, the timeframe and length of time delivering the services are also concerns, which could be examined in future research. A one-time referral services program is unlikely to provide services to the families when they need them, and if they are effective, to last over a long period

of time. The study also will hopefully inspire future program designers to consider ways to better approach and reach out to post-permanency families, and to enhance their willingness to receive the program when it is needed and to increase their satisfaction with post-permanency services.

REFERENCES

- Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*, 411-423.
- Angrist, J.D., Imbens, G.W., Rubin, D.B. (1996). Identification of causal effects using instrumental variables. *Journal of American Statistical Association*, *91*(434), 444-455.
- Armstrong, M.I., Birnie-Lefcovitch, S., & Ungar, M.T. (2005). Pathways between social support, family well-being, quality of parenting, and child resilience: What we know. *Journal of Child and Family Studies*, *14*(2), 269-281.
- Atkinson, A., & Gonet, P. (2007). Strengthening adoption practice, listening to adoptive families. *Child Welfare*, *86*(2), 87-104.
- Avery, R.J. (2004). *Strengthening and preserving adoptive families: A study of TANF-funded post adoption services in New York State*. Retrieved November 29, 2010, from <http://nysccc.org/wp-content/uploads/tanfaverypasrpt.pdf>
- Baran, A., & Pannor, R. (1990). Open adoption. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychology of adoption* (pp.316-331). New York: Oxford University Press.
- Barth, R.P., & Berry, M. (1987). Outcomes of child welfare services under permanency planning. *Social Service Review*, *61*(1), 71-90.
- Barth, R.P., & Berry, M. (1988). *Adoption and disruption: Rates, risks, and responses*. New York: Aldine.
- Barth, R.P., & Berry, M. (1991). Preventing adoption disruption. *Prevention in Human Services*, *9*, 205-222.
- Barth, R.P., Berry, M., Yoshikami, R., Goodfield, R.K., & Carson, M.L. (1988). Predicting adoption disruption. *Social Work*, *33*(3), 227-233.
- Barth, R.P., & Miller, J.M. (2000). Building effective post-adoption services: What is the empirical foundation? *Family Relations*, *49*(4), 447-455.
- Barth, R.P., Wulczyn, F., & Crea, T. (2005). From anticipation to evidence: Research on the Adoption and Safe Families Act. *The Virginia Journal of Social Policy and the Law*, *12*(3), 371-399.
- Benter, P.M., & Bonnet, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *86*, 588-606.
- Berry, M. (1990). Stress and coping among older child adoptive families. *Social Work & Science Review*, *1*(2), 71-93.

- Berry, M., & Barth, R.P. (1989). Behavior problems of children adopted when older. *Children and Youth Services Review, 11*, 221-238.
- Berry, M., Propp, J., & Martens, P. (2006). The use of intensive family preservation services with adoptive families, *Child and Family Social Work, 12*, 43-53.
- Boss, P. (2002). *Family stress management: A contextual approach* (2nd ed.). Thousand Oaks, CA: Sage.
- Boss, P., & Greenberg, J. (1984). Family boundary ambiguity: A new variable in family stress theory. *Family Process, 23*(4), 535-546.
- Brodzinsky, D. (2006). Family structural openness and communication openness as predictors in the adjustment of adopted children. *Adoption Quarterly, 9*(4), 1-18.
- Brodzinsky, D.M. (1987). Adjustment to adoption: A psychosocial perspective. *Clinical Psychology Review, 7*, 25-47.
- Brodzinsky, D.M. (1990). A Stress and coping model of adoption adjustment. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychology of adoption* (pp.3-24). New York: Oxford University Press.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-531.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723-742.
- Bronfenbrenner, U. (1999). Environment in developmental perspective: Theoretical and operational models. In S.L.Friedman & T.D.Wachs (Eds.), *Measuring environmental across the life span: Emerging methods and concepts* (pp. 3-28). Washington, DC: American Psychological Association Press.
- Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective. A bioecological model. *Psychological Review, 101*(4), 568-586.
- Brooks, D., Allen, J., & Barth, R.P. (2002). Adoption services use, helpfulness, and need: A comparison of public and private agency and independent adoptive families. *Children and Youth Services Review, 24*(4), 213-238.
- Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models*. Newbury Park, CA: Sage.
- Child Welfare Information Gateway. (2005a). *Adoption disruption and dissolution*. Retrieved January 05, 2013, from https://www.childwelfare.gov/pubs/s_disrup.cfm

- Child Welfare Information Gateway. (2005b). *Post-legal adoption services for children with special needs and their families: Challenges and lessons learned*. Retrieved January 05, 2013, from https://www.childwelfare.gov/pubs/h_postlegal/index.cfm
- Child Welfare Information Gateway. (2012). *Home study requirements for prospective parents in domestic adoption*. Retrieved January 05, 2013, from https://www.childwelfare.gov/systemwide/laws_policies/statutes/homestudyreqs_adoption.cfm
- Clark, P., Thigpen, S., & Yates, A.M. (2006). Integrating the older/special needs adoptive child into the family. *Journal of Marital and Family Therapy*, 32(2), 181-194.
- Coakley, J., & Berrick, J.D. (2008). In a rush to permanency: Prevention adoption disruption. *Child and Family Social Work*, 13, 101-112.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Crnic, K., Friedrich, W., & Greenberg, M. (1983). Adaptation of families with mentally retarded children: A model of stress, coping, and family ecology. *American Journal of Mental Deficiency*, 88, 125-213.
- Dane, A.V., & Schneider, B.H. (1998). Program integrity in primary and early secondary prevention: Are implementation effects out of control? *Clinical Psychology Review*, 18(1), 23-45.
- Deater-Deckard, K., Pinkerton, R., & Scarr, S. (1996). Childcare quality and children's behavioral adjustment: A four-year longitudinal study. *Journal of Child Psychology and Psychiatry*, 37, 937-948.
- Derdeyn, A.P., & Graves, C. L. (1998). Clinical vicissitudes of adoption. *Child and Adolescent Psychiatric Clinics of North America*, 7, 373-388.
- Dhami, M.K., Mandel, D.R., & Sothmann, K. (2007). An evaluation of post-adoption services. *Children and Youth Services Review*, 29, 162-179.
- Eamon, M.K. (2000). Structural model of the effects of poverty on externalizing and internalizing behaviors of four- to five-year-old children. *Social Work Research*, 24(3), 143-154.
- Eamon, M.K. (2001). The effects of poverty on children's socioemotional development: An ecological systems analysis. *Social Work*, 46(3), 256-266.

- Erich, S., & Leung, P. (1998). Factors contributing to family functioning of adoptive children with special needs: A long term outcome analysis. *Children and Youth Services Review*, 20(1/2), 135-150.
- Festinger, T. (2002). After adoption: Dissolution or permanence? *Child Welfare*, 81(3), 515-533.
- Festinger, T. (2006). Adoption and after: Adoptive parents' service needs. In M.M. Dore (Eds.), *The postadoption experience* (pp.17-44). Washington, DC: CWLA Press.
- Freedman, D.A. (2005). *Statistical models: Theory and Practice*. Cambridge: Cambridge University Press.
- Fuller, T.L., Bruhn, C., Cohen, L., Lis, M., Rolock, N., & Sheridan, K. (2006). *Supporting adoptions and guardianships in Illinois: An analysis of subsidies, services, and spending*. Final Report. Urbana, IL: Children and Family Research Center.
- Fuller, T.L., Nieto, M., Kurilla, C.A., Schreiber, J.C., Cross, T.P., Helton, J.J., Kearney, J.K.A., & Paceley, M. (2011). *Conditions of children in or at risk of foster care in Illinois: 2010 monitoring report of the B.H. consent decree*. Final report. Urbana, IL: Children and Family Research Center.
- Ge, X., Natsuaki, M.N., Martin, D.M, Leve, L.D., Neiderhiser, J.M., Shaw, D.S., et al. (2008). Bridging the divide: Openness in adoption and postadoption psychosocial adjustment among birth and adoptive parents. *Journal of Family Psychology*, 22(3), 529-540.
- George, R.M., Howard, E.C., Yu, D., & Radomsky, S. (1997). *Adoption disruption and displacement: The Illinois child welfare system, 1976-94*. Working paper, Chapin Hall Center
- Gennetian, L.A., Morris, P.A., Bos, J.M., & Bloom, H. S. (2005). Constructing instrumental variables from experimental data to explore how treatments produce effects. In H.S. Bloom (Eds.) *Learning more from social experiments: Evolving analysis approaches* (pp. 75-114). New York: Russell Sage Foundation.
- Gibbs, D., Barth, R.P., & Houts, R. (2005). Family characteristics and dynamics among families receiving postadoption services. *Families in Society*, 86 (4), 520-532.
- Gibbs, D., Siebenaler, K., & Barth, R.P. (2002). *Assessing the field of post-adoption services: Family needs, program models, and evaluation issues*. Summary report submitted to: U.S. Department of Health and Human Services.
- Goldman, G.D., & Ryan, S.D. (2011). Direct and modifying influences of selected risk factors on children's pre-adoption functioning and post-adoption adjustment. *Children and Youth Services Review*, 33, 291-300.
- Goldsmith, A. (2002). *Post Legal Adoption Network (PLAN) Program Summary (pro-gen)*. New Alternatives for Children, New York.

- Grotevant, H.D., Ross, N.M., Marchel, M.A., & McRoy, R.G. (1999). Adaptive behavior in adopted children: Predictors from early risk, collaboration in relationships within the adoptive kinship network, and openness arrangements. *Journal of Adolescent Research, 14*, 231-247.
- Groze, V. (1996). *Successful adoptive families: A longitudinal study of special needs adoption*. Westport, CT: Praeger.
- Groze, V., Young, J., & Corcran-Rumppe, K. (1991). *Post Adoption Resources for Training, Networking and Evaluation Services (PARTNERS): Working with Special Needs Adoptive Families in Stress*. Washington, DC: Prepared with Four Oaks, Cedar Rapids, Iowa, for the Department of Health and Human Services, Adoption Opportunities.
- Gubits, D., & Shroder, M.D. (2009). *Sensitivity of treatment on treated effects in the housing vouchers welfare experiment to alternative measures of compliance*. Working paper. Retrieved April 5, 2013 from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1484945
- Guo, S. Barth, R.P., & Gibbons, C. (2006). Propensity score matching strategies for evaluating substance abuse services for child welfare clients. *Children and Youth Services Review, 28*, 357-383.
- Hajal, F., & Rosenberg, E.B. (1991). The family life cycle in adoptive families. *American Journal of Orthopsychiatry 61*(1), 78-85.
- Haugaard, J.J., & Hazan, C. (2003). Adoption as a natural experiment. *Development and Psychopathology, 15*, 909-926.
- Henderson, S. (1980). A developmental in social psychiatry: The systematic study of social bonds. *Journal of Nervous and Mental Disease, 168*, 63-69.
- Hill, R.B. (2006). *Disproportionality of minorities in child welfare: Synthesis of research findings*. Retrieved May 20, 2013, from <http://www.cssp.org/reform/child-welfare/other-resources/Disproportionality-of-Minorities-in-Child-Welfare-Synthesis-of-Research-Findings.pdf>
- Hombrados, J.G., & Waddington, H. (2012). *Effect size calculation for experimental and quasi-experimental methods*. Retrieved March 28, 2013, from http://www.3ieimpact.org/media/filer/2012/12/24/jorge_garcia_hombrados-hugh_waddington_3ie_dhaka_colloquium.pdf
- Hoopes, J.L. (1990). Adoption and identity formation. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychology of adoption* (pp.144-166). New York: Oxford University Press.
- Hosmer, D.W., & Lemeshow, S. (2006). *Applied logistic regression* (2nd ed.). NJ: Wiley.

- Houston, D., & Kramer, L. (2008). Meeting the long-term needs of families who adopt children out of foster care: A three-year follow-up study. *Child Welfare, 87*(4), 145-171.
- Howard, J.A., & Smith, S.L. (1995). *Adoption preservation in Illinois: Results of a four year study*. Normal, IL: Illinois State University.
- Howard, J.A., & Smith, S.L. (2003). *After adoption: The needs of adopted youth*. Washington, DC: CWLA Press.
- Howard, J.A., Smith, S.L., Zosky, D.L., & Woodman, K. (2006). A comparison of subsidized guardianship and child welfare adoptive families served by the Illinois adoption and guardianship preservation program. *Journal of Social Service Research, 32*(3), 123-134.
- H.R. 6893/P.L. 110-351: *Fostering Connections to Success and Increasing Adoptions Act of 2008*. Retrieved April 5, 2013, from <http://www.childrensdefense.org/child-research-data-publications/data/FCSIAA-detailed-summary.pdf>
- Hu, L. & Bentler, P.M. (1995). Evaluating model fit. In R. H. Hoyle (Eds.), *Structural equation modeling. Concepts, issues, and applications* (pp.76-99). London: Sage.
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Johnson, D., & Fein, E. (1991). The concept of attachment: Applications to adoption. *Children and Youth Services Review, 13*(5/6), 397-412.
- Jöreskog, K.G., & Sörbom, D. (1993). *Structural equation modeling with the SIMPLIS command language*. Chicago: Scientific Software.
- Kessler, R.C., & Essex, M. (1982). Marital status and depression: The role of coping resources. *Social Forces, 61*, 484-507.
- Kirk, H.D. (1964). *Shared fate*. New York: Free Press.
- Kline R.B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: the Guilford Press.
- Koh, E., & Rolock, N. (2010). *Evaluation of adoption preservation, advocacy and linkage (APAL) & maintaining adoption connections (MAC) programs: Final report*. Urbana, IL: Children and Family Research Center.
- Kramer, L. & Houston, D. (1998). Supporting families as they adopt children with special needs. *Family Relations, 47*, 423-432.

- Lachin, J. (2000). Statistical considerations in the intent-to-treat principle. *Controlled Clinical Trials, 21*, 167-289.
- Lahti, M.F. (2006). Maine adoption guides: A study of postlegalization services. In M.M. Dore (Eds.), *The postadoption experience* (pp.111-134). Washington, DC: CWLA Press.
- Lenerz, K., Gibbs, D., & Barth, R.P. (2006). Postadoption services: A study of program participants, services, and outcomes. In M.M. Dore (Eds.), *The postadoption experience* (pp.95-110). Washington, DC: CWLA Press.
- Leung, P., & Erich, S. (2002). Family functioning of adoptive children with special needs: Implications of familial supports and child characteristics. *Children and Youth Services Review, 24*(11), 799-816.
- McCubbin, H.I., & Patterson, J.M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage and Family Review, 6*(1), 7-37.
- McDonald, T.P., Propp, J.R., Murphy, K.C. (2001). The postadoption experience: Child, parent, and family predictors of family adjustment to adoption. *Child Welfare, 80*(1), 71-94.
- Muthén, L.K., & Muthén, B.O. (1998-2010). *Mplus user's guide* (6th ed.). Los Angeles, CA: Muthén & Muthén.
- NSLY79 Child & Young Adult Data Users Guide (2009). *A guide to the 1986-2006 Child Data 1994-2006 Young Adult Data*. Center for Human Resource Research, The Ohio State University.
- Patterson, J. (2002). Integrating family resilience and family stress theory. *Journal of Marriage and Family, 64*, 349-360.
- Perry, C.L., & Henry, M.J. (2009). Family and professional considerations for adoptive parents of children with special needs. *Marriage and Family Review, 45*, 538-565.
- Peterson, J.L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavioral problems in children. *Journal of Marriage and the Family, 48*, 295-307.
- Prew, C., Suter, S., & Carrington, J. (1990). *Post adoption family therapy: A practice manual*. Salem, OR: Children's Services Division.
- Reilly, T., & Platz, L. (2003). Characteristics and challenges of families who adopt children with special needs: An empirical study. *Children and Youth Services Review, 25*(10), 781-803.
- Reilly, T., & Platz, L. (2004). Post-adoption service needs of families with special needs children: Use, helpfulness, and unmet needs. *Journal of Social Service Research, 30*(4), 51-67.

- Rossi, P.H., Lipsey, M.W., & Freeman, H.E. (2004). *Evaluation: A systematic approach* (7th ed.). Thousand Oaks, Calif: Sage.
- Rubin, D.B. (1974). Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology*, 66, 688-701.
- Rubin, D.B. (2004). Teaching statistical inference for causal effects in experiments and observational studies. *Journal of Educational and Behavioral Statistics*, 29(3), 343-367.
- Ryan, S.D., Nelson, N., & Siebert, C.F. (2009). Examining the facilitators and barriers faced by adoptive professionals delivering post-placement services. *Children and Youth Services Review*, 31, 584-593.
- Satorra, A., & Bentler, P. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66(4), 507-514.
- Schechter, M.D., & Bertocci, D. (1990). The meaning of the search. In D.M. Brodzinsky & M.D. Schechter (Eds.), *The psychology of adoption* (pp.62-90). New York: Oxford University Press.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.
- Schweiger, W.K., & O'Brien, M. (2005). Special needs adoption: An ecological systems approach. *Family Relations*, 54, 512-522.
- Shadish, W.R., Cook, T.D., & Campbell, D.T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin Company.
- Shrout, P.E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422-445.
- Smith, D.W., & Brodzinsky, D.M. (1994). Stress and coping in adopted children: A developmental study. *Journal of Clinical Child Psychology*, 23(1), 91-99.
- Smith, S.L. (2006). A study of the Illinois adoption/guardianship preservation program. In M.M. Dore (Eds.), *The postadoption experience* (pp.67-94). Washington, DC: CWLA Press.
- Smith, S.L., Garnier, P., Howard, J., & Ryan, S. (2006). Where are we now: A post ASFA examination of adoption disruption. *Adoption Quarterly*, 9(4), 19-44.
- Smith, S.L., & Howard, J.A. (1991). A comparative study of successful and disrupted adoptions. *Social Service Review*, 65(2), 248-265.

- Smith, S.L., Howard, J.A., & Monroe, A.D. (2000). Issues underlying behavior problems in at-risk adopted children. *Children and Youth Services Review, 22*(7), 539-562.
- Testa, M.F. (1997). Kinship foster care in Illinois. In J. Duerr Berrick, R. Barth & N. Gilbert (Eds.), *Child welfare research review, Volume two* (pp.101-129). New York: Columbia University Press.
- Testa, M.F. (2002). Subsidized guardianship: Testing an idea whose time has finally come. *Social Work Research, 26*(3), 145-158.
- Testa, M.F. (2004). When children cannot return home: Adoption and guardianship. *The Future of Children, 14*(1), 114-129.
- Testa, M.F. (2010). Logic of results-oriented accountability: Population, intervention, comparisons, and outcomes. In M. Testa & J. Poertner (Eds.), *Fostering accountability: Using evidence to guide and improve child welfare policy* (pp.75-100). New York: Oxford University Press.
- Tibbitts, I., & Mike, A. (2002). *San Diego youth and community services post-legal adoption support program*. San Diego Youth and Community Services, CA.
- Trute, B., Hiebert-Murphy, D., & Levine, K. (2007). Parental appraisal of the family impact of childhood developmental disability: Times of sadness and times of joy. *Journal of Intellectual and Developmental Disability, 32*(1), 1-9.
- Tucker, L.R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*, 1-10.
- U.S. Department of Health and Human Services (2011). *The AFCARS Report #19*. Washington, DC: Administration for Children and Families, Administration on Children, Youth, and Families, Children's Bureau Retrieved April 22, 2013, from <http://www.acf.hhs.gov/sites/default/files/cb/afcarsreport19.pdf>
- Van Der Gaag, M., & Snijders, T.A.B. (2005). The resource generator: social capital quantification with concrete items. *Social Networks, 27*, 1-29.
- Viana, A.G., & Welsh, J.A. (2010). Correlates and predictors of parenting stress among internationally adopting mothers: A longitudinal investigation. *International Journal of Behavioral Development, 34*(4), 363-373.
- Webster, D., Barth, R.P., & Needell, B. (2000). Placement stability for children in out-of-home care: A longitudinal analysis. *Child Welfare, 79*(5), 614-632.
- Wind, L., Brooks, D., & Barth, R.P. (2007). Influences of risk history and adoption preparation on post-adoption services use in U.S. adoptions. *Family Relations, 56*(4), 378-389.

Wright, L., & Flynn, C.C. (2006). Adolescent adoption: Success despite challenges. *Children and Youth Service Review*, 28, 487-510.

Yu, C. (2002). *Evaluating cutoff criteria of model fit indices for latent variable models with binary and continuous outcomes*. Unpublished doctoral dissertation, University of California, Los Angeles.

Zosky, D. L., Howard, J.A., Smith, S.L., Howard, A.M., & Shelvin, K.H. (2005). Investing in adoptive families: What adoptive families tell us regarding the benefits of adoption preservation services. *Adoption Quarterly*, 8(3), 1-24.

APPENDIX A

Appendix Table 10. Service Contact by Assignment (Source: PP-II survey)

	Intervention Group		Comparison Group		Total N
	n	%	n	%	
Recalled contacted by a provider	73	32.30	18	8.50	91
	(Compliers)		(Crossovers)		
Recalled not contacted by a provider	146	64.60	189	88.70	335
	(No-shows)		(Compliers)		
Missing	7	3.10	6	2.80	13
Total N	226		213		439

Appendix Table 11. Tests of Statistical Differences in Covariates between Groups in the ITT and TOT Samples

Variable	ITT Sample (N=439)		TOT Sample (N=316)	
	APAL Group (n=226)	Comparison Group (n=213)	APAL Receipt (n=121)	Comparison Group (n=195)
	Weighted % / Mean (SE)	Weighted % / Mean (SE)	Weighted % / Mean (SE)	Weighted % / Mean (SE)
Child and family characteristics				
Age at study	14.81 (.11)	15.34 (.17)	14.81 (.15)	15.27 (.18)
Age at finalization	7.74(.19)	7.59(.21)	7.91(.27)	7.41(.21)
Child's gender				
Female	49.31%	41.40%	50.95%	41.87%
Race/ethnicity				
African American	96.85%	91.77%	95.92%	91.41%
White	1.87%	3.68%	2.75%	4.00%
Hispanic	.92%	3.15%	1.01%	3.43%
Number of displacements in foster care	1.80(.12)	1.82(.11)	1.79(.17)	1.81(.12)
Substitute care history since finalization				
Group home	1.65%	1.92%	.66%	2.09%
Inpatient psychiatric hospital	4.48%	7.70%	3.73%	7.05%
Runaway	7.48%	11.38%	7.19%	10.49%
Living outside the home	8.22%	9.98%	9.23%	40.49%
Disability	40.79%	51.41%	41.07%	50.67%
Attending school most days in past month	95.02%	84.63%	97.65%	84.38%
Kinship placement	85.67%	84.84%	83.74%	84.62%
Caregiver's age	57.10(.89)	57.85(1.17)	58.47(1.15)	58.47(1.22)
Caregiver's gender				
Female	95.46%	94.05%	94.10%	93.70%
Being employed	38.63%	38.09%	38.77%	38.08%
Caregiver married	22.95%	20.26%	21.33%	21.89%
Family income	4.07 (.13)	3.38 (.15)	4.11 (.17)	3.38 (.15)
Household size	4.68 (.14)	4.01 (.16)	4.72 (.21)	3.97 (.17)
Number of children adopted/under guardianship	2.42 (.09)	1.81 (1.00)	2.41 (.13)	1.86 (.10)
Microsystems				
Pre-intervention out-of-home placement	17.22%	23.44%	18.13%	23.07%
Number of post-permanency service needs	2.25(.18)	2.48(.21)	2.26(.25)	2.48(.21)
Mesosystems				
Birth family contact	91.91%	95.64%	88.61%	95.25%

Table 11. (cont.)

Variable	ITT Sample (N=439)		TOT Sample (N=316)	
	APAL Group (n=226)	Comparison Group (n=213)	APAL Receipt (n=121)	Comparison Group (n=195)
	Weighted % / Mean (SE)	Weighted % / Mean (SE)	Weighted % / Mean (SE)	Weighted % / Mean (SE)
Exosystems				
Informal social support network	28.38 (.85)	27.48(.85)	28.77(1.14)	27.43(.91)
Receiving a monthly subsidy	99.62%	90.86%	99.31%	90.04%
Receiving medical card/insurance	99.27%	93.71%	98.99%	93.14%
Macrosystems				
Permanency type				
Adoption	72.90%	69.02%	71.42%	69.66%

Note. All analyses were weighted using importance weights to represent the Chicago post-permanency family population. SE = standard error. Bolded number indicates a statistical difference between the two groups at $p < .05$ level. Fisher's exact test was used instead of a Chi-square test to examine associations between two categorical variables when the cell percentage for some variables was lower than 5%.

* $p < .05$

APPENDIX B

Effect Size

Standardized mean difference (effect size for continuous variables):

$$SMD = \frac{\beta}{S_p}$$

$$S_p = \sqrt{\frac{(SD_y^2 * (n_t + n_c - 1)) - (\frac{\beta^2 * (n_t * n_c)}{n_t + n_c})}{n_t + n_c}}$$

Note. β - Regression coefficient

SD_y - Sample standard deviation of the dependent variable

n_t - Sample size for treatment group

n_c - Sample size for comparison group

For the calculation of effect sizes of APAL assignment and receipt: All the values were obtained from the corresponding outputs in Table 2 and Table 3 in Chapter 3, except for the sample size for the two groups.

For the ITT sample:

Externalizing behavior: $n_t = 216$ $n_c = 201$

Caregiver commitment: $n_t = 213$ $n_c = 197$

For the TOT sample:

Externalizing behavior: $n_t = 119$ $n_c = 185$

Caregiver commitment: $n_t = 117$ $n_c = 181$