AN EXAMINATION OF POST-PERMANENCY ADJUSTMENT AND DISCONTINUITY
FOR OLDER FOSTER YOUTH IN ADOPTIVE AND GUARDIANSHIP HOMES

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ABSTRACT

KEVIN WHITE: An Examination of Post-Permanency Adjustment and Discontinuity for
Older Foster Youth in Adoptive and Guardianship Homes
(Under the direction of Mark F. Testa)

For more than two decades, child welfare scholars, practitioners, and advocates involved with the U.S. child welfare system have engaged in coordinated efforts to increase the number of foster youth who find stable, permanent homes through adoption or guardianship, and these efforts have been shaped and guided by federal policies and directives. As a result, the number of children adopted or placed into guardianship out of foster care has increased since the mid-1990s, and the proportion of exits from foster care due to adoption or guardianship has been growing over time as well. Although this increase in permanency for foster youth is generally deemed a success resulting from improvements in child welfare policy and practice, some voices have also raised concerns that perhaps foster youth are being placed in permanent homes too quickly, or without adequate preparation, and thus, a high proportion foster youth may experience poor long-term outcomes and foster care reentry, otherwise known as post-permanency *discontinuity*.

Despite these concerns about the stability of foster care adoptions and guardianships, little is known about how former foster youth fare after legal finalization of permanent placements. Data on youth and families after finalization are difficult to obtain, and few rigorous studies have examined outcomes for this population or evaluated interventions designed to prevent discontinuity. This three-paper dissertation is an effort to address these issues.

The first paper is a systematic review of the literature undertaken to summarize the risk and protective factors for discontinuity and outcomes proximal to discontinuity found in previous peer-reviewed studies. Proximal outcomes to discontinuity are short-term outcomes that signal child or family adjustment problems after adoption or guardianship (e.g., child behavior problems, family adjustment, or parental stress), and may also be mediators in the chain of risk between child, family, or service characteristics and discontinuity. For the systematic review, an explicit search strategy is specified in order to conduct a replicable review, including the dates of searches, search engines and databases used, inclusion and exclusion criteria, and search terms. Search terms are derived using keywords from other studies and by searching database thesauruses. Also, the search strategy is checked by examining whether important articles are captured.

The second paper describes exploratory and confirmatory factor analyses implemented to develop a scale for caregiver commitment, a proximal measure to discontinuity. The psychometric properties of the caregiver commitment variable are discussed and described, including its internal consistency reliability in the sample. Also, this caregiver commitment variable is included as an outcome variable in a multivariate regression model to investigate the relationship between child behavior problems and caregiver commitment, holding the effects of other potential confounding variables constant.

The third study examines the effects of the Illinois Adoption Preservation and Linkages Program (APAL) on child behavior problems and caregiver commitment, two outcomes considered to be proximal to discontinuity. APAL is a post-permanency intervention designed to decrease discontinuity for adolescent youth in legally permanent adoption or guardianship homes. In the study, average treatment effects for APAL are

estimated for assignment to treatment, analogous to an intent-to-treat effect, as well as for treatment compliers.

Overall, dissertation findings suggest several risk factors for poor post-adoption or guardianship child and family adjustment, including an older child age, child behavior problems, a child history of sexual or physical abuse, inadequate information given to caretakers, and unrealistic expectations of caretakers. In addition, results show that the caregiver commitment scale developed from survey data is a useful proximal measure to detect post-permanency family problems that may occur prior to discontinuity. This dissertation also provides evidence that the APAL intervention is associated with fewer child behavior problems, and that APAL may also improve caregiver commitment, but the findings for caregiver commitment are inconclusive. Areas for future research are highlighted in each of the papers, and this dissertation demonstrates that, overall, more rigorous research is needed to understand the strengths and needs of post-adoption and guardianship families, and to develop effective post-permanency interventions.

Dedicated to Allison and Emma

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INTRODUCTION

AN EXAMINATION OF POST-PERMANENCY ADJUSTMENT AND DISCONTINUITY FOR OLDER FOSTER YOUTH IN ADOPTIVE AND GUARDIANSHIP HOMES

Permanency for foster youth, or the attainment of a long-term, stable home with loving caregivers, is one of the three central goals of the child welfare system in the United States, along with child safety and well-being (U.S. Department of Health and Human Services [USDHHS], 2005). When children are removed from their homes and placed into foster care due to child abuse or neglect, the first goal is usually reunification with the removal parent or caretaker. However, slightly less than 50% of children who enter foster care do not return home because the conditions that led to child removal do not improve or even worsen (Wulczyn, 2004). When this occurs, alternative plans must be made to find a permanent home for children.

Currently, the two accepted alternative permanency outcomes for youth in foster care are adoption and guardianship. In adoption, the legal termination of parental rights is required, and children become "full and permanent legal members of another family while maintaining genetic and psychological connections to their birth family" (USDHHS, 2015a). In contrast, guardianship does not require termination of parental rights and is somewhat less legally binding than adoption, although more legally permanent than a simple transfer of child custody (USDHHS, 2015b). Guardianship is often the preferred alternative permanency option when caretakers prefer that children retain some degree of relationship, such as visitation, with their biological parents (USDHHS, 2015b). In particular, guardianship is used

more often with relative caretakers, who may want to retain their kinship relationship with the child and prevent permanently severing the legal ties between the biological parents and child (Testa, 2004).

Due to recent federal policy initiatives, including the passage of the Adoption and Safe Families Act of 1997, as well as changes in practice and evolving social norms that are more accepting of non-traditional family structures, the number and percentage of children adopted or placed into guardianship out of foster care has increased dramatically over the past two decades (Allen & Bissell, 2004; Rosenthal & Groze, 1990; Rosenthal & Groze, 1994; Smith, Howard, Garnier, & Ryan, 2006; Smith, Howard, & Monroe, 1998; Testa, 2004). For example, 44,403 youth exited to adoption in 2000, accounting for 17% of the exits from foster care, and 51,225 youth exited to adoption in 2012, making up 21% of exits. Similarly 8,536 youth exited to guardianship in 2000, accounting for 3% of exits from foster care, and 16,418 youth exited in 2012, which was 7% of all exits from foster care (Annie E. Casey Foundation, 2015).

The increase in the numbers of foster children finding permanent homes through adoption or guardianship is generally heralded as a success due to changes in child welfare practice and policy. However, when youth achieve legal permanency through adoption or guardianship this does not necessarily imply long-term child stability or well-being. Unfortunately, some adopted and guardianship youth experience post-permanency *discontinuity*, defined as reentry into foster care for seven or more days, or a subsidy ending prematurely, after legal finalization of a permanent living arrangement through adoption or guardianship (Testa et al., 2014). A reasonable estimate of the risk of PPD in the United States based on previous studies is between 2% and 15% (Barth, Berry, Yoshikami,

Goodfield, & Carson, 2001; Barth & Miller, 2000; Berry, Propp, & Martens, 2007; Festinger, 2002; Hartinger-Saunders, Trouteaud, & Matos-Johnson, 2014; Henry, 1999; Koh & Testa, 2011; McDonald, Propp, & Murphy, 2001; Selwyn, Wijedasa, & Meakings, 2014; Testa, 2004). This rate is much higher than the risk of foster care placement for the general population, which is .34% (USDHHS, 2011). Also, because a high number of children exit foster care to either adoption or guardianship, over 9,000 children may be expected to experience discontinuity each year (USDHHS, 2011).

Child welfare studies have consistently demonstrated that placement instability for youth in foster care is associated with a myriad of negative child well-being outcomes, including behavioral problems, low educational achievement, and poor mental health (D'Andrade, 2005; Newton, Litrownik, & Landsverk, 2000; Unrau, Seita, & Putney, 2008). However, little contemporary research has examined the consequences of discontinuity for adopted or guardianship youth. The studies that have been done on post-adoption and guardianship youth and families have also been limited by serious methodological flaws, such as inadequate attention to selection bias, and the use of small convenience samples, ambiguous conceptual definitions, or short study windows (Berry et al., 2007; Dhami, Mandel, & Sothmann, 2007; Groze, 1996; Haugaard, Wojslawowicz, & Palmer, 1999; Smith et al., 2006; Treseliotis, 2002). In addition, few previous studies have examined risk factors for post-permanency difficulties among particular subgroups of foster youth considered to be at-risk, such as older children or children with special needs. (Berry et al., 2007; Testa, 2004). Therefore, more rigorous post-permanency research is needed to identify children and families most at-risk for discontinuity and other adjustment difficulties, and to evaluate interventions that may address problems before they occur.

Organization of the Dissertation

This dissertation addresses the issues outlined above. The dissertation presents three papers that focus on identifying risks and opportunities faced by post-adoption and guardianship children and families, and evaluating a program designed to prevent placement discontinuity. The first manuscript is a systematic review of the literature that summarizes risk and protective factors for post-adoption and guardianship problems that have been identified in previous studies. The second manuscript reports on the development of a measure of caregiver commitment (a proximal outcome of interest related to discontinuity) from two post-permanency surveys conducted by the Illinois Department of Children and Family Services (IDCFS) with adoptive and guardianship families. Exploratory and confirmatory factor analyses are used to develop a scale for caregiver commitment, and then the relationship between child behavior problems and caregiver commitment is explored using multivariate regression. Finally, the third manuscript is an evaluation of the Illinois Adoption Preservation and Linkages (APAL) program using a regression discontinuity design. APAL is a post-permanency needs assessment and service referral program designed to prevent placement changes for adolescents placed in adoptive or guardianship homes.

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PAPER I

RISK AND PROTECTIVE FACTORS FOR POST-PERMANENCY DISCONTINUITY: A
SYSTEMATIC REVIEW

Abstract

Over the past two decades, the number of foster youth who achieve permanency through

adoption and guardianship in the United States has increased significantly. This trend has

significant implications for child welfare research, policy, and practice. However, the risk

and protective factors for discontinuity, or foster care reentry that occurs after legal

finalization of an adoption or guardianship, have received limited attention in the child

welfare literature. Also, many previous studies that examined post-permanency adjustment

for former foster youth have been limited by serious methodological and/or conceptual flaws.

The purpose of this study is to investigate the peer-reviewed literature that relates to risk or

protective factors for discontinuity or outcomes considered to be proximal to discontinuity. A

systematic search located 18 quantitative, quasi-experimental studies published in peer-

reviewed journals that implemented multivariate methods. This review finds that the quality

of the research evidence is generally weak, but previous studies do suggest several risk and

protective factors, including child, family, and service characteristics, for discontinuity and

other post-permanency difficulties.

Risk and Protective Factors for Post-Permanency Discontinuity: A Systematic Review

Child permanency, or the attainment of a permanent, family living arrangement after foster care, is a central goal of the U.S. child welfare system (U.S. Department of Health and Human Services [USDHHS], 2005; USDHHS, 2011a). Child welfare scholars, policy-makers, and advocates generally agree that a safe, enduring, family home is the best placement option for all children who come into contact with the child welfare system. When children are initially placed into foster care due to child maltreatment (i.e., abuse, neglect, or dependency), the priority and preference for child permanency is reunification with biological parents or relative caretakers. However, because reunification is not possible for approximately half of all foster children (USDHHS, 2011b; Wulczyn, 2004), other placement options are needed to ensure permanency for maltreated youth.

Currently, only two permanency options other than reunification exist for foster children in the United States: adoption and guardianship. Adoption requires termination of parental rights and is more legally binding than guardianship (USDHHS, 2013b); guardianship involves the transfer of legal custody of a child to another caretaker without necessarily terminating parental rights (USDHHS, 2013a). Both relatives and non-relatives may provide permanent homes for children through either adoption or guardianship. However, guardianship has historically been used more often with relative placement than non-relative placement, because guardianship allows for the continued involvement of biological parents in children's lives through child support payments and visitation, requires less legal burden to dissolve, and preserves kin roles that exist between these caretakers and the child (Testa, 2004).

In recent decades, U.S. federal policy has provided directives and incentives for child welfare agencies to increase permanency through adoption and guardianship (Allen & Bissell, 2004). In particular, the Adoption and Safe Families Act of 1997 (ASFA) prioritized adoption and legitimized guardianship as permanency goals when reunification is no longer an option and mandated timelines for agencies to move children into permanent homes (Allen & Bissell, 2004; Child Welfare League of America, 2013). Coincident with the evolution of federal policies, social norms regarding adoption and guardianship changed (with greater acceptance of non-traditional family structures), the pool of non-foster children available for adoption shrank, and child welfare advocates became increasingly concerned about large numbers of children languishing in the foster care system (Rosenthal & Groze, 1990; Rosenthal & Groze, 1994; Smith, Howard, Garnier, & Ryan, 2006; Smith, Howard, & Monroe, 1998; Testa, 2004). Likely due to the convergence of these political and social forces, the number of children who exit foster care to adoption and guardianship has grown significantly over the past twenty years (Berry, Propp, & Martens, 2007; Smith et al., 2006; USDHHS, 2011c; Testa, 2004). For example, from 1998 to 2008, the number of children adopted from public child welfare agencies grew from about 36,000 to approximately 55,000 (USDHHS, 1998; USDHHS, 2011c).

Because of the increasing numbers of children leaving foster care via adoption or guardianship, child welfare scholars and policy-makers have raised concerns due to limited research on safety, permanency, and well-being outcomes for adoptive and guardianship children (Barth & Miller, 2000; Festinger, 2002). Researchers have noted particular concern for certain at-risk subgroups, such as children with disabilities or adolescents. Scholars have

suggested that because of the high physical, emotional, or behavioral needs of these children, a large proportion of these youth may reenter foster care (Berry et al., 2007; Testa, 2004).

Despite this alarm, little research has examined the prevalence and risk factors for post-adoption or guardianship placement changes (Smith, et al., 2006; Treseliotis, 2002). Further, the rates of and risk factors for *discontinuity*, or foster care reentry that occurs after legal finalization of an adoptive or guardianship placement, are difficult to ascertain from prior research due to serious methodological limitations. For example, few previous post-permanency studies have examined high-risk populations or monitored children's outcomes for years after adoptions or guardianships are finalized (Berry et al., 2007; Haugaard, Wojslawowicz, & Palmer, 1999; Smith et al., 2006; Treseliotis, 2002). In addition, many studies used cross-sectional data; small, convenience samples; or samples that combined cases from different types of permanency arrangements such as private, public, and international adoptions (Dhami, Mandel, & Sothmann, 2007; Groze, 1996; Smith et al., 2006). Sample limitations are prevalent in the literature because adoptions and guardianships are a relatively low percentage of permanency outcomes (as compared to reunification) for any given child welfare agency (USDHHS, 2011a), and because after legal finalization of adoption or guardianship, foster care cases are closed, children's names change, families may move, and states no longer track families except to provide financial subsidies (Festinger, 2002). Thus, data on post-permanency cases is difficult to obtain. Finally, in many previous post-permanency studies, inadequate attention is given to selection bias. Few research designs have incorporated multivariate methods or rigorous observational designs (e.g., regression discontinuity, propensity score analysis, or instrumental variables; Shadish, Cook,

& Campbell, 2002) to account for selection biases that potentially confound the association between putative risk or protective factors and post-permanency outcomes.

In addition to methodological problems, much post-permanency research suffers from conceptual limitations. For example, risk factors for discontinuity have often been measured without standardized instruments in previous studies and/or been ambiguously defined by researchers (Dhami et al., 2007; Rycus, Freundlich, Hughes, Keefer, & Oakes, 2006). Also, scholars have put forth several definitions for placement changes after adoption or guardianship placement, and these definitions are often combined or confused in the literature. Specifically, *disruption* is generally defined as placement of a child back into foster care prior to legal finalization of adoption or guardianship (Festinger, 2002). In contrast, *dissolution* typically refers to the formal, permanent termination of a permanent placement after it has already been legally finalized (Smith et al, 1998), and *discontinuity* refers to changes in adoption or guardianship placement after legal finalization, but includes both temporary and permanent changes (Testa et al., 2014). These three terms are also sometimes combined in the literature to indicate one event or construct, such as *breakdown* (Treseliotis, 2002). Other terms for post-permanency placement instability found in the literature include *displacement*, defined as a change in physical custody of an adopted or guardianship child without a change in legal custody; *post-adoption placement*, which signifies the temporary return of a child to foster care to receive necessary services; and *subsidy ended prematurely*, which refers to the termination of an adoption or guardianship subsidy prior to a child turning age 18 (Festinger & Maza, 2009; Rolock, 2014).

In this study, post-adoption or guardianship placement changes are examined using the definition of discontinuity as put forth by Testa and colleagues (2014): foster care reentry

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for seven or more days, or a subsidy ending prematurely, for a former foster child subsequent to legal finalization of an adoption or guardianship. Thus, this term has a more global definition than either displacement or dissolution, in that it includes both temporary and permanent changes in a child's placement, as well as a subsidy ending before the child is age 18. However, discontinuity is distinct from disruption, because discontinuity only refers to placement instability that occurs after legal finalization of an adoption or guardianship. Also, it is important to note that there are numerous reasons why a subsidy could end prematurely, such as due to a family moving out of state or a caregiver death (Rolock, 2014). Therefore, including subsidy ending prematurely in the definition of discontinuity may inflate the discontinuity rate somewhat, because some cases of a subsidy ending may be due to changes in family circumstances rather than placement changes for children (Rolock, 2014).

Despite their limitations, previous studies that examined post-permanency placement discontinuity or dissolution provide a general indication of discontinuity rates in the United States. The few studies that investigated adoption alone suggest that somewhere between about 2 to 15% of finalized adoptions end in foster care reentry, but this range of estimates likely masks important differences for older children or children with behavioral needs (Barth, Berry, Yoshikami, Goodfield, & Carson, 2001; Barth & Miller, 2000; Berry et al., 2007; Festinger, 2002; Hartinger-Saunders, Trouteaud, & Matos-Johnson, 2014; McDonald, Propp, & Murphy, 2001; Selwyn, Wijedasa, & Meakings, 2014). Fewer guardianship studies have examined discontinuity or dissolution, but suggest that rates are similar to those for adoption, with estimates from as low as 2% to almost 20% (Henry, 1999; Koh & Testa, 2011; Testa, 2004). Thus, a reasonable estimate for the rate of discontinuity in the United States is between 2% and 15%. This range is fairly broad and, as noted above, is based on

studies hampered by significant limitations such as small convenience samples, varying definitions for discontinuity, and short follow-up periods (i.e., less than 2 years).

Thus, the risk for discontinuity may be better than child welfare scholars feared after the implementation of ASFA (Berry et al., 2007), In comparison, the risk for foster care reentry after reunification is about 12% within one year, and up to 30% within 10 years (USDHHS, 2012a; Wulczyn, 2004). However, the risk for discontinuity is much higher than the risk of foster care placement for the general United States population of 0.34% (USDHHS, 2011a). Also, because a high number of children exit foster care to either adoption or guardianship each year, what might seem to be a modest percent translates to markedly higher numbers; for example, about 64,000 children exited to adoption or guardianship in 2011 (USDHHS, 2011a), suggesting as many as 9,600 of these children may be expected to experience discontinuity.

Consequences of Discontinuity

The experience of removal from a permanent family and placement into foster care is often traumatic (Bruskas, 2008), adding in some cases to the trauma already experienced due to child abuse, neglect, or dependency. Early trauma experiences are associated with a myriad of negative life outcomes, including cardiac disease, depression, and even premature death (Bruskas, 2008). Children who experience multiple early adverse experiences are over 20% more likely to report health problems or disability as adults (Chartier, Walker, & Naimark, 2010), and up to 30% of children who experience two or more traumatic events may be expected to develop major depression as adults (Danese et al., 2009).

Decades of research indicate that placement instability for children in foster care is associated with numerous negative outcomes including attachment disorders, poor

educational achievement, mental health issues, behavioral problems, and poor preparation for independent living as adults (D'Andrade, 2005). As a case in point, male foster children who experience three or four or more placements are 54% and 113% more likely to be delinquent, respectively, as compared to males with just one placement (Ryan & Testa, 2005). Further, for children in foster care, experiencing an average of two more placements per year is associated with about a two-thirds reduction in the odds of completing high school (Pecora et al., 2006). Multiple changes in foster care placement over a 12-month period also relate to negative externalizing and internalizing behaviors, including anxiety, depression, aggression, and hyperactivity (Newton, Litrownik, and Landsverk, 2000). Finally, as children get older, their likelihood of being adopted decreases, and they have more difficulty adjusting to adoptive placements (Haugaard et al., 1999).

There are also significant societal costs due to post-permanency discontinuity. Decisions to place children in permanent adoptive or guardianship homes are carefully vetted by family court judges, caseworkers, child welfare administrators, attorneys, and court-appointed child advocates (Allen & Bissell, 2004). Thus, considerable time and public money are spent finding, approving, and monitoring legally permanent placements. One study estimates that adoption is between 3% and 55% cheaper than long-term foster care, depending on the scope of services provided (Barth, Lee, Wildfire, and Guo, 2006). This range is conservative, however, as it takes into account only the direct costs of providing care (such as payments or benefits for adoption versus foster care assistance) and ignores potential indirect costs such as lower employment and increased health care expenses.

Method

The purpose of this study was to systematically review the literature to determine the risk and protective factors associated with discontinuity for former foster youth. The first step was a systematic search of several electronic academic databases. Keywords and search strings were derived by the author using keywords and information from known articles that related to discontinuity, including Barth & Miller (2000); Berry et al. (2007); Dhami et al. (2007); Festinger (2002); Smith et al. (2006); and Testa (2004). These six articles were also designated as "target studies" that should be captured by the search if the strategy was effective and sufficiently comprehensive. The keywords and strings used in all searches are shown in Table 1.1.

Five databases were searched, and all searches were limited to articles in peer-reviewed, English-language journals. This review was limited to articles in peer-reviewed journals because, as noted above, post-permanency research has been limited by poor research design, including small convenience samples, cross-sectional analyses, measurement limitations, selection biases, and ambiguous constructs. Thus, peer-review provided an important filter to ensure that only studies characterized by rigorous designs, methods, and reporting would be included in the final sample.

Table 1.1 Keywords and Search Strings

1)	(risk OR resilienc* OR predictor* OR correlate*) AND ("adoption dissolution" OR "adoption disruption" OR "placement discontinuity")
2)	(risk OR resilienc* OR predictor* OR correlate*) AND permanenc* AND guardianship AND "foster care"
3)	adoption AND dissolution AND "foster care"
4)	guardianship AND (dissolution OR disruption) AND "foster care"
5)	("post-adoption service*" OR "post-permanenc*" OR "post-guardianship") AND "foster care"

After the literature search was completed, article abstracts were read and screened according to the six inclusion criteria below. If an abstract provided no or limited information related to the inclusion criteria, the article was selected for full-text review to ensure that no relevant articles were inadvertently excluded. An article was selected for full-text review if the study:

(1) Examined risk or protective factors for discontinuity or another post-permanency outcome that could plausibly be considered proximal to discontinuity, such as parent satisfaction, youth behavior, or caregiver commitment;

(2) Implemented quantitative methods;

(3) Used either an experimental design or a multivariate quasi-experimental design that accounted for the effects of covariates and confounding variables (e.g., RCT, multivariate regression, MANOVA, or propensity score analysis);

(4) Investigated a child welfare population in the United States or another country with a similar child welfare system (specifically, Western Europe, Canada, or Australia);

(5) Included a majority of youth in the sample (over 50%) with a history of child welfare services involvement;

(6) Included at least some youth in the sample who were ages 6 or older at the time of the study.

The final stage of this study was a full-text review of the articles selected from the abstract screening phase. The same six inclusion criteria above were also applied to select full-text articles for the final sample. In addition, snowball sampling (Contandriopoulos, Lemire, Denis, & Tremblay, 2010; Hesse-Biber & Leavy, 2011) was implemented to locate more studies. Specifically, the references lists of all full-text articles were searched to find

other articles that related to risk and protective factors for discontinuity, and the full texts of those articles were reviewed as well.

Results

The results of database searches are shown in Table 1.2. The search strategy captured a total of 355 articles, including five of the six of the target studies. The one target study not found using the initial search strategy (i.e., Dhami et al., 2007) was later captured during full-text review using snowball sampling.

Table 1.2. Search Results

Date	Database	Search Engine	Number of Articles
6/5/2014	Social Services Abstracts	ProQuest	32
6/5/2014	PsychInfo	EBSCO Host	56
6/5/2014	Social Work Abstracts	EBSCO Host	11
6/5/2014	Sociological Abstracts	ProQuest	6
6/5/2014-6/7/2014	Google Scholar (the first 50 articles for each string, sorted by "relevance")		250
		Total	355

The PRISMA flow chart in Figure 1.1 (Moher, Liberati, Tetzlaff, Altman, & the PRISMA group, 2009) shows the number of articles excluded at each stage of the review process. In the abstract screening phase, 113 studies were excluded because they were duplicates. Another 190 abstracts were also screened out due to not meeting the six inclusion criteria specified above, leaving a total of 52 articles for full-text review. In addition, 39 more articles were identified for full-text review through snowball sampling. Then, of the 91 articles that were subjected to full-text review, only 18 met the criteria for inclusion in the final sample. Many full-text articles were excluded from the final sample because they were qualitative literature reviews, or, more commonly, because they combined pre-finalization

and post-finalization data for youth and/or families. This is consistent with previous research reviews which have also noted that post-finalization-only studies are relatively rare in the literature (Festinger, 2002; Selwyn et al., 2014).
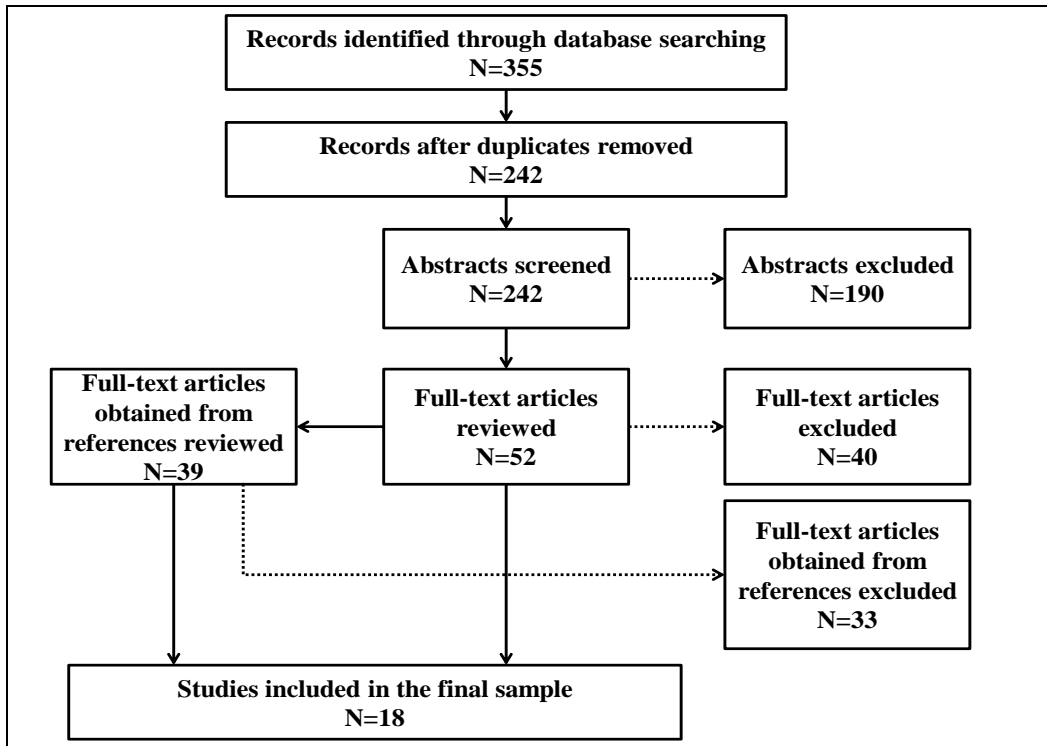
Figure 1.1 PRISMA flow chart

Table 1.3 in Appendix A provides a summary of the 18 studies selected for the final sample. Only three studies explicitly examined risk or protective factors for discontinuity or dissolution. The rest investigated risk or protective factors for outcomes that could plausibly be considered proximal to discontinuity, such as child behavior problems, parent satisfaction with the adoption, or impact of the adoption on the family. All the studies in the final sample examined adoptive families, but only one (Koh & Testa, 2011) investigated outcomes for guardianship families. Finally, the majority of studies were published within the past ten years, and five were published since 2011, consistent with the idea that post-finalization

adjustment of adoptive and guardianship families is a fairly new and evolving topic in child welfare research (Berry et al, 2007; Selwyn et al., 2014).

In regard to research methods and design, 14 studies used multivariate regression to explore the impact of risk or protective factors on post-permanency outcomes while holding the effects of other factors and confounding variables constant. Other methods that were implemented in studies included structural equation modeling (SEM; Goldman & Ryan, 2011), propensity score analysis (Koh & Testa, 2011), generalized estimating equations (GEE; Nalavany, Glidden, & Ryan, 2009), and multivariate analysis of variance (MANOVA; Reilly & Platz, 2004). No RCTs were identified in this systematic review, signaling a serious limitation in the literature. Three of the studies were longitudinal (Berry et al, 2007; Goldman & Ryan, 2011; Koh & Testa, 2011), and thus, addressed some of the common threats to internal validity found in observational research, such as ambiguous temporal precedence and maturation (Shadish et al., 2002).

Discontinuity

Three studies in the sample attempted to identify risk or protective factors for discontinuity. Berry et al. (2007) used hierarchical multivariate regression to analyze placement outcomes at 6 and 12 months follow-up for a sample of post-adoptive families who had received intensive in-home services over a period of 10 years, controlling for numerous child, family, and service characteristics. The authors found that child and family factors, including non-white child, full time employment of the primary caregiver, and an initial placement reason of child maltreatment, were most predictive of placement discontinuity at 6 months follow-up. However, at 12 months follow-up, although child and family characteristics were still predictive of placement stability, service factors explained

more variance in the outcome, including the types of problems addressed by services (child behaviors, child abuse issues, or parenting issues) and the number of days receiving services (with longer service durations associated with family "intactness"). The authors concluded that long-term, intensive in-home services may help protect post-adoptive families from placement discontinuity, particularly when families have problems that relate to child behavior rather than parenting issues. However, the sample consisted only of high need families, because in order to be eligible for intensive in-home services, it was required that there was an imminent risk of youth out-of-home placement. This was reflected in the relatively high discontinuity rate of 17% for the sample.

Koh and Testa (2011), in the only study in this review that examined both adoptive and guardianship families, explored whether a pre-permanency placement in kinship foster care was protective against foster care reentry as compared to a pre-permanency placement in non-kinship foster care. The authors implemented multivariate regression, propensity score analysis (with matched groups), and survival analyses, and found no significant impact of kinship versus non-kinship foster care on post-adoption discontinuity. However, in regard to post-guardianship discontinuity, statistical models suggested the possibility of a protective effect for kinship foster care. Specifically, models estimated with an unmatched sample indicated that the expected time to foster care re-entry for guardianship cases was about 13 times greater for children placed in kinship foster care versus non-kinship foster care, but this statistically significant relationship was not found using the matched sample. Therefore, the authors concluded that more research on the impact of pre-permanency kinship care on post-guardianship discontinuity is needed.

Using stepwise multivariate regression with survey data, Hartinger-Saunders and colleagues (2014) explored whether post-adoption service needs or access predicted discontinuity, or reentry of a child into foster care (to receive services or for other reasons), as indicated by parent report. Results indicated that 17% of families reported that they had experienced discontinuity after adoption. Further, findings showed that needing substance abuse or educational advocacy services was associated with higher placement discontinuity and accessing educational advocacy services or parent support groups was associated with lower discontinuity. However, results also indicated that accessing substance abuse services was associated with higher placement discontinuity. The authors note that this predictor variable in the survey data did not indicate whether substance abuse treatment was successful or not, only whether it was accessed. The authors also surmised that there may be unintended consequences of actually receiving substance abuse services, such as unrealistically raising parents' expectations regarding youth behavior.

Impact on the Family

Several studies examined the impact of risk or protective factors on post-permanency family adjustment or functioning. For instance, Rosenthal and Groze (1990) used stepwise multivariate regression to investigate the relationship between child, family, and service factors and a parent-report, Likert scale that measured the impact of adoption on the family. Consistent with previous literature, results showed that several risk factors were related to a negative impact of the adoption, including an older child age at placement, higher parent education levels, child externalizing behaviors (i.e., negative behaviors directed toward the external environment such as hyperactivity, aggression, or defiance; Liu, 2004), suspected child history of sexual abuse, and a child history of group home or psychiatric placement.

Protective factors were also identified, including single parent adoption, higher family cohesion, family approval for the adoption, more information shared with the parent during the adoption process, and a higher child enjoyment of school.

Also using stepwise regression, McDonald and colleagues (2001) investigated the relationship between child, parent, and family variables and family adjustment as measured by a scale developed by the authors. Regression models indicated that a higher number of child special needs, more total children in the home, and a higher family income were associated with lower family adjustment. Conversely, married adoptive parents and more adopted children in the home were related to better family adjustment. The variable for special needs of the child accounted for over a third of the variance in family adjustment in the final regression model. Adoptive parents were also very positive about their adoptions, with 76% reporting that they were satisfied with the adoption process. However, parents also reported problems regarding post-adoption supports, and suggested improvements for more efficient, consistent, and effective services.

Leung and Erich (2002) examined post-adoption family adjustment as measured by the Self-Report Family Functioning Scale (SFI; Beavers, Hampson, & Hulgus, 1985) using stepwise multivariate regression with a sample of intact adoptive families. The study found that sibling group adoption, child behavior problems, more child contact with legal authorities (e.g., arrests), an older child age at adoption, and more social support from schools or relatives were all risk factors for poor family adjustment. In contrast, higher social support from a spouse or partner was a protective factor for family adjustment. The authors concluded that sibling adoption and child behavior scores were most predictive of family functioning because they accounted for about 42% of the variance in the outcome. Similarly,

Erich and Leung (2002) investigated the impact of risk and protective factors on family functioning (i.e., scores on the SFI) using MANOVA. Results were consistent with their previous study, in that, family functioning was significantly lower for sibling group adoption.

In another study that implemented stepwise multivariate regression, Leung, Erich, Kanenberg (2005) examined the impact of child and family characteristics on family functioning, but also looked at the impact of adoptive placement with same-sex parents. The study found that both an older child age at adoption and child disability were factors associated with poorer family functioning. Consistent with previous studies (Barth & Miller, 2000; Selwyn et al., 2014) older child age was one of the strongest predictors of family functioning in the final regression model. In addition, sibling group adoption, special needs child, and more previous placements of the child were associated with better family functioning. There was no significant impact in regression models for same-sex adoptive parents, but an interaction effect indicated better reported adjustment for same-sex families with older child placements.

Belanger, Cheung, and Cordova (2012) used stepwise multivariate regression to examine the relationship between child and service factors and the impact of the adoption on the family in African-American special needs adoptions. Findings showed that parents who reported children were more difficult (according to the Parenting-Stress Index; Abidin, 1995) also reported a more negative impact of the adoption on the family, with the child behavior variable accounting for about 17% of the variance in the outcome. Also, consistent with qualitative results from interviews with families, low caseworker support was associated with a more negative impact of the adoption on the family in the final stepwise regression model; religious support was not associated with family adoption outcomes. Based on both

quantitative and qualitative findings, the authors concluded that post-adoptive African-American families in rural communities benefit from flexible post-adoption resources and a strong relationship with a trustworthy adoption caseworker.

Finally, Reilly and Platz (2003) used multivariate methods to examine the impact of child, parent, and agency factors and post-adoption support service needs on a parental assessment of the impact of adoption on the family and marriage (among other outcomes—see below). The study used a sample of intact special needs adoptive families. A consistent finding across regression models was that more appropriate parental expectations for children's behavior was associated with a better rating for impact of the adoption on the marriage and family.

Child Behavior Problems

Four studies explored the impact of risk or protective factors on child behavior problems. For instance, Groza and Ryan (2002) regressed total and subscale scores from the Child Behavior Checklist (CBCL; Achenbach & Ruffle, 2000) on child, family, and service factors. The study found high rates of behavior problems for adoptees as compared to the general population, but also showed that the majority of adoptive parents were very satisfied in their relationship with their children. Further, a poor parent-child relationship was a consistent predictor of higher CBCL scores in 10 of 11 estimated regression models, and a child history of sexual abuse was associated with higher CBCL scores in several regression models. In a similar study, Erich and Leung (2002) also examined the risk and protective factors for child behavior problems in a sample of adoptive families. MANOVA models showed that youth adopted as sibling groups were at lower risk for negative externalizing

behaviors as measured by the Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978) than children not adopted with a sibling.

Averett and colleagues (2009) examined the effects of adoptive parents' sexual orientation and other factors on children's externalizing and internalizing behavior problems as measured by the CBCL. Results showed no impact of parents' sexual orientation on outcomes, but found that each one year increase in a child's age was associated with a .24 and .23 point increase internalizing and externalizing behaviors, respectively. Also, children with a history of sexual abuse had internalizing and externalizing CBCL scores that were 2.76 and 4.44 points higher, respectively, than children without a history of sexual abuse; and children with a history of physical abuse had externalizing CBCL scores that were 2.36 points higher than children without a history of physical abuse. More pre-adoption preparation, better family functioning, higher annual income, and female child were all associated with less problematic internalizing or externalizing behaviors in regression models.

Finally, Goldman and Ryan (2011) estimated SEM models with longitudinal survey data to examine the impact of alcohol, tobacco, and other drug (ATOD) exposure; child gender; child history of sexual abuse; and the number of child placements on the relationship between child pre-adoption functioning and post-adoption externalizing behaviors as measured by the CBCL. Results showed that higher ATOD exposure was associated with worse pre-adoption functioning, but no risk or demographic factor alone significantly altered the strong negative relationship between pre-adoption functioning and post-adoption externalizing behaviors. However, a cumulative moderation model suggested that there was a moderation effect of combined risk factors on the relationship between pre-adoption

functioning and post-adoption externalizing behaviors, suggesting avenues for further research.

Parent Satisfaction

Four studies selected for this review examined parent satisfaction with the adoption as a post-permanency outcome. Reilly and Platz (2003) investigated the impact of child and family factors on two parent-report outcomes—parent satisfaction with the adoption and parent-child relationship quality. The authors found that more appropriate parental expectations for children's behavior was associated with better parent satisfaction and parent-child relationship ratings. In addition, fewer child behavior problems were associated with higher parental satisfaction. Looking at the same outcomes but in relationship to service needs and use, Reilly and Platz (2004) showed that receiving informal, financial, or other services was positively related to higher parental satisfaction, and having an unmet need for counseling services was associated with a lower quality of the parent-child relationship.

Smith-McKeever (2006) explored parent satisfaction among African-American adoptive families using stepwise multivariate regression. Study results showed that more child behavior problems (as measured by total CBCL scores), greater frequency of parents' thoughts about the child, and higher parenting stress were all risk factors for lower parent satisfaction with the adoption, although over 80% of parents reported being "extremely satisfied." Some factors associated with post-adoption problems in previous studies, such as older child age and type of previous maltreatment, were not significant predictors of parent satisfaction. Thus, the authors concluded that researchers should not assume that risk factors for post-adoption difficulties apply across different racial or socioeconomic categories.

Also looking at parental satisfaction as an outcome, Nalavany and colleagues (2009) used generalized estimating equations to test the impact of child learning disability, as well as the mediation effect of child internalizing or externalizing behaviors, controlling for numerous child and family demographic or risk factors. The authors found that a statistically significant negative relationship between child learning disability and parental satisfaction was mediated by internalizing or externalizing behaviors. In the final multivariate model, results showed that African-American parent, married parent, and child age were negatively related to parent satisfaction; adoption preparation and higher family functioning were positively related to parent satisfaction.

Other Outcomes

Nalavany, Ryan, Howard, and Smith (2008) examined the impact of several child and parent factors, including childhood sexual abuse (CSA), on parental commitment to the adoption, using a dichotomized Likert scale completed by caseworkers. Families were participants in an adoption preservation program, so they were at higher risk for discontinuity. The results of logistic regression showed that pre-adoptive CSA was associated with more inconsistent parental commitment to the adoption, even after controlling for the effects of child age and gender. Specifically, children with pre-adoptive histories of sexual abuse were 182% more likely to have an inconsistently committed parent as compared to children without histories of sexual abuse.

Last, Ward (2012) examined the impact of child maltreatment type, as well as child and family characteristics, on the use of different types of support services. Results showed that depending on the type of maltreatment, varying types of support services were used, and that the majority of families used at least some type of post-adoption services. In regard to

risk factors, the authors showed that having an adopted child with problematic social behaviors was associated with increased use of mental health, family counseling, and mentoring services. In addition, foster care adoption, siblings in the home, and a household income between 100% and 200% of poverty level (as compared to an income greater than 200% of poverty level) were positively related to the use of mental health, adoption support group, and mentoring services, respectively. Although the study findings were limited because service use may not be a useful proxy for post-adoption adjustment problems (for example, service use may reflect program availability or family income rather than need), the authors concluded that the results were consistent with previous literature that indicates child and family characteristics influence post-permanency adjustment, and that children with behavioral problems in particular may struggle to adjust to adoptive placements (Barth & Miller, 2000).

Discussion

Although caution must be exercised when generalizing results across studies in a qualitative systematic review (Valentine, 2014), several key findings relevant to post-permanency discontinuity warrant further elaboration. First, this review provides evidence that most families stay intact after legal finalization of an adoption or guardianship, even when they are referred to family preservation services to prevent imminent placement of a child. In addition, most post-permanency youth and families receive at least some kind of post-adoption services, but the types of services received do not always match family needs, and parents frequently report that more, or different, post-permanency services are needed. Also, consistent with previous studies of post-permanency services (Dhami et al., 2007; Groze, 1996; Zosky, Howard, Smith, Howard, & Shelvin, 2005), this review suggests that

services are most effective when they are flexible, individualized, and available for an extended period of time, such as for months or years after legal finalization.

Risk and Protective Factors Identified Across Studies

Several risk factors for discontinuity were identified in multiple studies included in this review. First, children who exhibited problematic behaviors, particularly externalizing behaviors such as poor social functioning, aggression, hyperactivity, or defiance, and their families were at greater risk for poor post-permanency outcomes. In addition, families with adopted or guardianship youth who were older, or who had a history of childhood physical or sexual abuse, generally experienced worse post-permanency adjustment. Finally, parents who reported unrealistic child behavioral expectations or receiving less information from child welfare agencies also tended to report more post-permanency problems. Thus, the findings of this review are consistent with previous literature reviews on *pre*-finalization adoption disruption for older children, which have also identified these same variables as risk factors for family difficulties and discontinuity (see Barth & Miller, 2000 and Smith et al., 2006).

Studies in this review also indicated possible protective factors against discontinuity. For example, the timely provision of intensive, post-adoption family preservation services was helpful for at-risk families, particularly when problems were related to children's difficult behaviors (Berry et al., 2007). Results were also generally positive for African-American families, because two studies (Smith-McKeever, 2006; Belanger et al., 2012) found that African-American parents were willing and able to successfully adopt youth with serious histories of child maltreatment. As one exception, however, Nalavany and colleagues (2009) found lower adoptive parent satisfaction for African-American caretakers. Finally, not surprisingly, several studies (Averitt et al., 2009; Leung & Erich, 2002; Nalavany et al.,

2009; Rosenthal & Groze, 1999) also provided evidence that higher family cohesion and functioning at the time of child placement was associated with better post-permanency adjustment.

The relationship between several other risk or protective factors and post-permanency outcomes were less clear from this review, because findings were inconsistent across studies. For example, Ward (2012) showed that the number of children in the home was negatively related to the service needs of post-adoptive families. However, McDonald and colleagues (2001) found positive impacts on family adjustment for a higher number of adopted children in the home and negative impacts for more total children in the home. Similarly, several studies found that a child's disability or special needs significantly influenced the post-permanency functioning of children and families, but the nature of this relationship varied. For instance, McDonald and colleagues (2001) showed that the number of child special needs had a negative relationship to positive family adjustment, but Leung and colleagues (2005) found that special needs adoption had a positive influence on post-permanency functioning, and child disability had a negative impact. The contradictory results for child "special needs" may be at least partly due to the fact that this is a broad, somewhat ambiguous term that may be defined differently across studies. Specifically, special needs may refer to a child's older age, minority race, disability, and/or sibling group placement (Berry et al., 2007; Groze, 1996).

Other risk or protective factors that showed inconsistent results across or within or studies in this review included child gender, family income, social support, and needing or accessing different types of post-permanency services. Thus, it seems likely that there are complex, interactive, and cumulative effects between many post-permanency risk or

protective factors and outcomes over time (Berry et al., 2007; Goldman & Ryan, 2011; White & Wu, 2014). Contradictory results then may reflect varying population conditions across studies and design limitations, as well as different study windows, constructs, methods of measurement, and sampling particulars.

Limitations of the Literature

Many of the studies selected for this review were limited by serious methodological problems, despite the fact that the search was restricted to articles in peer-reviewed journals. One noteworthy concern is that the results of several studies may have been biased because of the reliance on small convenience samples, and because data were taken from surveys of parents low to modest response rates (less than 50%). Thus, participation bias is possible because the characteristics of families that responded to surveys may have differed from non-respondents in meaningful ways. Indeed, two studies (Smith-McKeever, 2006; Hartinger-Saunders et al., 2014) compared the characteristics of the study samples to general samples of adoptive families and found significant differences between groups. In addition, because most of the studies in this review relied on parent report data, other biases are possible, such as social desirability bias (if parents were motivated to present themselves or their families in a positive manner; DeVellis, 2003), or recall bias (if survey questions required parents to report information about events that occurred prior to the time of the observation; Jonson-Reid, Kohl, & Blake, 2012).

Also, for several studies in this review, surveys of adoptive parents were restricted to intact families only. This restriction potentially creates selection bias by conditioning on discontinuity, the distal outcome of interest. Specifically, by including intact families only, data is lost for families who have already experienced discontinuity, arguably the families

most at-risk for post-permanency problems. Related, the selected studies did not define discontinuity or other post-permanency outcomes uniformly, and thus, differing results across studies may reflect the use of different outcomes of interest, or the same outcomes measured different ways, rather than contradictory results.

Research designs and methods were generally weak for studies selected in this review. For example, 15 of the 18 studies examined cross-sectional rather than longitudinal data, which is problematic because the risk or protective factors that influence discontinuity are likely different over developmental and historical time (Berry et al., 2007; White & Wu, 2014). Only one study (Koh & Testa, 2011) implemented survival analysis, the appropriate method for analyzing a time-to-event outcome such as discontinuity that may show data censoring (Guo, 2010).

Although multivariate methods were used in all of the selected studies, statistical models were frequently estimated with few covariates, or without important covariates that have been found in previous research to influence both risk or protective factors and outcomes (e.g., child behavior problems). Therefore spurious relationships between risk or protective factors and post-permanency outcomes were possible if estimates from multivariate models did not account for potential confounding factors (Shadish et al., 2002). Future post-permanency studies should implement more rigorous designs, such as propensity score analysis, regression discontinuity, or instrumental variables; use survival analysis with time-to-event outcomes such as discontinuity; and include relevant covariates in multivariate models to better account for possible selection bias, a prevalent concern in child welfare research (Berger, Bruch, Johnson, James, & Rubin, 2009; Berzin, 2010; Koh & Testa, 2008; Koh & Testa, 2011).

A final research design limitation is that no studies were found that used random assignment of participants to experimental conditions. Although challenging, random assignment has been demonstrated to be feasible with child welfare and other vulnerable populations (Testa & White, 2014). Further, random assignment provides the best evidence of a causal relationship between risk or protective factors and outcomes with the least assumptions (Fraser, Richman, Galinsky, & Day, 2009; Shadish et al., 2002). Modifications of simple random assignment, such as the wait-list or Zelen designs (Adamson, Cockayne, Puffer, & Torgerson, 2006; Shadish et al., 2002), may be particularly useful to examine the impact of services or interventions with adoptive or guardianship families.

Limitations of the Current Study

There are two notable limitations for this review. A significant limitation is that only one study (Koh & Testa, 2011) rigorously examined guardianship families after legal finalization. Although other informative articles that related to guardianship were identified using the search strategy (see Henry, 1999; Howard, Smith, Zosky, & Woodman, 2006; and Testa, 2004), these were not included in the final review sample because they either did not employ multivariate analyses with observational data (i.e., analyses were descriptive or bivariate only), or they included pre-finalization youth or families in the analysis sample. Therefore, clearly more research is needed to rigorously examine post-permanency adjustment for guardianship families, particularly because guardianship is likely to become an even more common permanency option for child welfare-involved youth in coming years (Testa, 2004; Testa, 2013).

Another limitation of this systematic review is that literature database searches were restricted to articles published in peer-reviewed journals. The grey literature, which is

informally or non-commercially published materials such as government reports, dissertations, theses, and research briefs (Hopewell, McDonald, Clark, & Egger, 2007), and books were not searched for this review. Thus, the results may be affected by publication bias, which occurs because studies with significant results, or results that conform to scholars' expectations, are more likely to be submitted to journals and accepted for publication (Shadish et al., 2002). However, a cursory examination of several recent post-permanency studies in the grey literature indicated findings that were generally consistent with the results of this review (see Barth, 2009; Biehal, Ellison, Baker, & Sinclair, 2009; Egbert, 2003; Jones & LaLiberte, 2010; Rolock, 2014; Selwyn et al., 2014; USDHHS, 2010; USDHHS, 2012b).

Conclusion

This systematic literature review located and described 18 studies published in peer-reviewed journals that evaluated risk or protective factors for post-permanency discontinuity or outcomes proximal to discontinuity. The current state of post-permanency research is generally weak, because most studies have been limited by problems related to research design and/or methods. However, some risk factors for discontinuity were suggested by similar findings across studies, including child characteristics (older age, behavior problems, and a history of physical or sexual abuse), unrealistic parental expectations for the child, and inadequate information or training given to parents. These factors are consistent with previous research on risk factors for pre-finalization disruption of an adoption placement. Further, this review suggests some protective factors that could be incorporated into interventions designed for post-permanency families, such as extended, flexible, and intensive post-permanency services, as well as pre-placement family counseling to help

parents obtain the information they need to be successful and develop appropriate behavioral and developmental expectations for children. Identifying risk and protective factors for discontinuity remains a critical task for child welfare researchers, because children and youth continue to exit the U.S. foster care system to adoption and guardianship at increasing rates, and this trend is expected to continue into the near future.

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Appendix A. Table 1.3. Summary of Selected Post-Permanency Studies

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Rosenthal & Groze (1990)	Stepwise multivariate regression	799 parents who had adopted children with special needs through four different agencies in three states	Positive family impact: a five-item Likert-type scale	• Child age at placement (-) • Education level of the parents (-) • Single parent at placement (+) • Externalizing behavior problems (-) • Family cohesion score (+) • Approval of parents' family (+) • Amount of background information given (+) • Child enjoyment of school (+) • Sexual abuse prior to placement (-) • Group home or psychiatric placement prior to placement (-)
McDonald et al. (2001)	Stepwise multivariate regression	159 parents who had at least one adoptive child placed in their homes by a public child welfare agency in Kansas in the 18 to 24 months prior to 1995	Positive family adjustment to adoption: a placement adjustment scale (PAS) derived from survey responses	• Number of child special needs (-) • Parent relationship to child: mother (+) • Married parent (+) • Number of adopted children in the home (+) • Number of overall children in the home (-) • Income (-)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Erich & Leung (2002)	MANOVA	52 parents of 117 adopted children, primarily from one southern state	Positive family functioning: a subscale adapted from the Family Health section of the Self-Report Family Functioning (SFI) Scale	• Physical abuse (-) • Sexual abuse (-) • Sibling group adoption (-)
			Child behavior problems: Eyberg Child Behavior Inventory (ECBI)	• Sibling group adoption (-)
Groza & Ryan (2002)	Multivariate regression	Parents of 61 youth adopted from public child welfare agencies in Iowa with an open subsidy case in 1990	Child behavior problems: Child Behavior Checklist (CBCL); total scale and subscales	• Female child (+) • Child age at placement (-) • Child age at testing (+) • Parent-child relationship dissatisfaction (+) • Child history of sexual abuse (+)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Leung & Erich (2002)	Stepwise multivariate regression	52 parents of 84 special needs children who were adopted or received services from one of four adoption programs in a large metropolitan area of a southern state	Positive family functioning: a subscale adapted from the Family Health section of the SFI	• Sibling group adoption (-) • Child behavior problems (-) • Legal contacts since adoption (-) • Spouse or partner support (+) • Relative support (-) • School support (-) • Child age at adoption (-)
Reilly & Platz (2003)	Stepwise multivariate regression	249 parents of 373 adopted special needs children in Nevada with an open subsidy case in 2000	Parental satisfaction: scale adapted from a subscale of the Parent-Child Relationship Inventory	• Child behavior problems (-) • Parents' appropriate expectations about child's behavior (+)
			Parent-child relationship quality: a scale derived by summing scores on five items	• Parents' appropriate expectations about child's behavior (+)
			Overall positive family impact: a one-item rating	• Parents' appropriate expectations about child's behavior (+)
			Overall positive impact on the marriage: a one-item rating	• Parents' appropriate expectations about child's behavior (+)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Reilly & Platz (2004)	MANOVA	249 parents of 373 adopted special needs children in Nevada with an open subsidy case in 2000	Parental satisfaction: see Reilly and Platz (2003) above	• Receiving informal support services (+) • Receiving financial services (+) • Receiving other services (+)
			Parent-child relationship quality: see Reilly and Platz (2003) above	• Unmet counseling needs (-)
Leung et al. (2005)	Stepwise multivariate regression	A combined sample: 86 parents of 117 adopted special needs children; 47 gay/lesbian parents of 68 children; and 25 heterosexual parents of 43 adopted children The majority of families were recruited from four adoption programs in a large metropolitan area in a southern state	Poor family functioning: a scale adapted from both the Family Health of the SFI and the Family Assessment Measure III (FAM-III)	• Child age at adoption (+) • Sibling group adoption (-) • Child disability (+) • Special needs adoption (-) • Number of previous placements (-) • Interaction between gay/lesbian adoptive parent and child age (i.e., better functioning reported in gay/lesbian families with older adopted children)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Smith-McKeever (2006)	Stepwise multivariate regression	83 African-American families who adopted children from two private agencies in California between 1990 and 1995 (the majority of adoptees had been in the public child welfare system)	Parents' satisfaction with the adoption: a scale developed from five Likert-type items	• Parenting stress (-) • Child behavior problems (-) • Frequency of parents thoughts about the child when separated (-)
Berry et al. (2007)	Hierarchical multivariate regression	99 adopted children from 445 families served by Missouri Intensive In-home Services (IIS) over 10 years; most children previously placed by child welfare services due to abuse or neglect	Family intactness at 6 months follow-up: child was still placed in the home	• Child white race (+) • Full-time employment of the primary caregiver (-) • Initial placement reason suspected abuse/neglect of the child (-)
			Family intactness at 12 months follow-up: child was still placed in the home	• Child age at acceptance into IIS (+) • Child age at follow-up (-) • Full-time employment of primary caregiver (-) • Initial placement reason suspected abuse/neglect of the child (-) • Problem addressed in IIS: child behaviors (+) • Problem addressed in IIS: parent issues (-) • Problem addressed in IIS: child abuse issues (+) • Number of days receiving IIS (+)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Nalavany et al. (2008)	Multivariate logistic regression	Adoptive parents of 117 children in families who had participated in the Illinois Adoption and Guardianship Preservation Services Program (APS) in 2002	Inconsistent parental commitment: a dichotomized measure derived from a five-point Likert scale (caseworker report)	• Child sexual abuse history (+)
Averett et al. (2009)	Multivariate regression	Adoptive parents of 1,004 children ages 6 to 18 in Florida; the majority of youth were adopted from the public child welfare system	Child externalizing behaviors: CBCL	• Child age (+) • Adoption preparation (-) • Family functioning (-) • Family income (-) • Male child (+) • Child history of physical abuse (+) • Child history of sexual abuse (+)
			Child internalizing behaviors: CBCL	• Child age (+) • Adoption preparation (-) • Family functioning (-) • Family income (-) • Child history of sexual abuse (+)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Nalavany et al. (2009)	Generalized estimating equations	Parents of 1,865 older children who had been adopted through the Florida public child welfare system and responded to a survey in 2002	Parents' satisfaction with the adoption: a scale developed from four Likert-type questions	• African-American parent (-) • Married parent (-) • Adoption preparation (+) • Family functioning (+) • Child age (-) • Child internalizing behaviors (-) • Child externalizing behaviors (-)
Goldman & Ryan (2011)	Structural equation modeling	Adoptive parents of 636 children who participated in the Florida Adoptive Families Study in 2002 (wave 1) and 2003 (wave 2)	Child externalizing behavior problems: CBCL	• Child pre-adoption functioning (a latent variable based on behavioral, emotional, and educational ratings by the adoptive caregiver at the time of adoption; -)
Koh & Testa (2011)	Multivariate regression, propensity score analysis, and survival analysis	12,088 youth in either a kinship or non-kinship foster home in Illinois between March 2001 and September 2007 who exited to reunification, adoption, or guardianship	Foster care reentry	• Foster care placement with relatives prior to guardianship (-; but results were mixed and thus, suggestive only)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Ward (2012)	Logistic multivariate regression	Parents of 1,141 adopted children, ages 6 to 17, who participated in the National Survey of Adoptive Parents in 2007	Support service use: any service	• Child male (+) • Child Hispanic (+) • Child problem social behaviors (+)
			Support service use: adoption support group	• Number of siblings in the household (+)
			Support service use: mental health care or counseling	• Child male (+) • Child non-Hispanic Asian (-) • Child problem social behaviors (+) • Foster care adoption (+)
			Support service use: family counseling	• Child problem social behaviors (+)
			Support service use: mentor program	• Child problem social behaviors (+) • > 100% but $\leq$ 200% of the federal poverty level (+)
Belanger et al. (2012)	Stepwise multivariate regression	113 adoptive families recruited from Louisiana and Texas (children adopted between 1990 and 2004); the majority of parents and adoptees were African-American	Overall negative impact of the adoption on the family: a Likert variable	• Difficult child (subscale of the Parenting Stress Index; +) • Worker support (-)

Study	Design	Sample size and characteristics	Outcome and Measure	Risk/protective factors (and direction of the relationship with the outcome)
Hartinger-Saunders et al. (2014)	Stepwise multivariate logistic regression	405 adoptive parents who had adopted at least one child from the U.S. foster care system and participated in the National Adoptive Families Study (NAFS) between January to March of 2012	Dissolution/ discontinuity: parents reported whether a child who had been adopted had returned to foster care	• Substance abuse treatment needed (+) • Substance abuse treatment accessed (+) • Educational advocacy needed (+) • Educational advocacy accessed (-) • Parent support groups accessed (-)

PAPER II

DEVELOPMENT OF A MEASURE OF CAREGIVER COMMITMENT AND
INVESTIGATION OF ITS RELATIONSHIP TO CHILD BEHAVIOR PROBLEMS

Abstract

This study uses survey data to develop a measure of caregivers' commitment to children in

adoption or guardianship placements, as well as investigate the relationship between the

behavior problems of children and caregiver commitment. First, a latent measure of caregiver

commitment is developed using exploratory factor analysis, with data obtained from a

sample of adoptive and guardianship caregivers who responded to a survey. Next, the

psychometric properties of the caregiver commitment measure are investigated by means of

Cronbach's alpha and confirmatory factor analysis. Finally, the relationship between

problematic child behaviors and caregiver commitment is examined using multivariate linear

regression. Findings support the use of the caregiver commitment measure as an outcome in

research, and suggest avenues for future scale development. In addition, results indicate a

negative relationship between child behavior problems and caregiver commitment, even after

controlling for the effects of several child and family characteristics.

Development of a Measure for Caregiver Commitment and Investigation of Its

Relationship to Child Behavior Problems

Caregiver self-reported commitment to a child in an adoption or guardianship placement is a useful indicator of post-permanency family adjustment, and also a plausible proximal outcome to *discontinuity*, or placement changes after legal permanency (Nalavany, Ryan, Howard, & Smith, 2008; Testa et al., 2014). More formally, discontinuity refers to foster care reentry for seven or more days, or a subsidy ending prematurely, for a former foster child subsequent to legal finalization of an adoption or guardianship. Discontinuity is a broad definition of placement instability because it includes temporary placement changes, often described in the literature as *foster care reentry*, *displacement*, or *post-adoption placement*; legally permanent placement changes, or *dissolution*; and early termination of an adoption or guardianship subsidy before a child turns age 18 (Festinger & Maza, 2009; Rolock, 2014). It is important to note that discontinuity is different from *disruption*, which refers to placement changes that occur prior to legal finalization of adoption or guardianship.

In the United States, estimates for the risk of discontinuity range from about 2% to 15% (Berry, Propp, & Martens, 2007; Festinger, 2002; Hartinger-Saunders, Trouteaud, & Matos-Johnson, 2014; Henry, 1999; Koh & Testa, 2011; McDonald, Propp, & Murphy, 2001; Selwyn, Wijedasa, & Meakings, 2014; Testa, 2004; Testa et al., 2014). However, these estimates are based on studies with significant limitations, such as small convenience samples, different and inconsistent definitions of discontinuity, and follow-up periods of less than 2 years (Dhami, Mandel, & Sothmann, 2007; Festinger, 2002). Even a small percentage of discontinuities for adoptions and guardianships translates into a high number of former foster youth experiencing placement instability, because the number of adoptive or

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guardianship homes has grown dramatically in the United States over the past several decades. For example, the average U.S. monthly adoption or guardianship subsidy caseload has increased from about 12,000 in 1984 to approximately 450,000 in 2013 (Committee on Ways and Means of the U.S. House of Representatives, 2013). Further, placement instability is associated with many deleterious outcomes for foster youth, including relationship problems, low academic achievement, mental health issues, behavioral problems, and poor preparation for adulthood (D'Andrade, 2005). Therefore, discontinuity represents a significant risk for children involved with the child welfare system.

Measures for outcomes proximal to discontinuity, such as caregiver commitment, are needed to help practitioners and researchers detect post-adoption or guardianship family adjustment problems early, before placement changes occur. A scale for caregiver commitment would be particularly useful for intervention researchers, because it would be more sensitive to subtle changes in post-permanency family adjustment than a simple measure of discontinuity, which happens only after families have reached a point of significant crisis. A caregiver commitment scale would also help child welfare administrators or practitioners better predict the likely success of an adoption or guardianship placement prior to legal finalization.

Therefore, this study has two purposes. The first is to present evidence regarding the psychometric properties of a caregiver commitment measure derived from survey data. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are implemented to provide evidence of content validity for the commitment measure, or the degree to which all aspects of the caregiver commitment construct are represented by the scale and the indicators of the scale represent the construct well (DeVellis, 2003).

The second purpose of this study is to examine the relationship between problematic child behaviors and caregiver commitment to an adoption or guardianship. Child behavior problems are one risk factor for post-permanency difficulties and discontinuity frequently discussed in the child welfare literature (Houston & Kramer, 2008; Henry, 1999; Reilly & Platz, 2004; Rosenthal & Groze, 1990; Tan & Marn, 2013; Wind, Brooks, & Barth, 2007). Negative child behaviors expected to complicate adoption or guardianship adjustment include externalizing behaviors, or actions directed toward others such as aggression, defiance, and hyperactivity; and internalizing behaviors, which are harmful behaviors directed toward the self such as social withdrawal, guilt, nervousness, and somatization (Erich & Leung, 2002; Groze, 1996; Nalavany, Glidden, & Ryan, 2009; Tan & Marn, 2013).

Literature Review

Much previous research on post-adoption or guardianship families has been limited by the use of ambiguous concepts and poor measurement of outcomes (Festinger, 2002; Smith et al., 2006; Treseliotis, 2002). In addition, putative proximal outcomes related to discontinuity, such as family adjustment, child behavior problems, or caregiver commitment, have frequently been measured without standardized scales, sometimes using only one response item or with little or no information given regarding the quality or reliability of the scale (Belanger et al., 2012; Nalavany et al., 2008; Reilly & Platz, 2003; Rycus, Freundlich, Hughes, Keefer, & Oakes, 2006). Thus, the author knows of no standardized measure for caregiver commitment that is currently available and validated for use with post-adoption or guardianship families.

Measurement limitations in post-permanency research have been prevalent, at least in part, because data on adoptive and guardianship families are difficult to obtain. After legal

finalization of an adoption or guardianship, foster care cases are closed and families typically have little or no contact with child welfare agencies (Festinger, 2002). In addition, post-adoption or guardianship surveys often have low to modest response rates, despite the persistent efforts of researchers to contact families (McDonald et al., 2001; Erich & Leung, 2002; Festinger, 2002; Goldman & Ryan, 2011). Finally, studies indicate that discontinuity occurs for less than 15% of post-permanency families, and thus, study windows are often not sufficiently long to measure meaningful variation in placement changes over time (Berry et al., 2007; Festinger, 2002; Hartinger-Saunders et al., 2014; Henry, 1999; Koh & Testa, 2011; McDonald et al., 2001; Selwyn et al., 2014; Testa, 2004; Testa et al., 2014).

As evidence of the limitations of previous post-permanency studies, a recent systematic review of the literature located only one previous post-permanency study that explicitly measured caregiver commitment to an adoption or guardianship (White, 2015). Nalavany and colleagues (2008) examined whether a history of childhood sexual abuse (CSA) was associated with inconsistent parental commitment to adoption, controlling for the effects of child gender and age at the time of removal. Parental commitment was measured using a five-item Likert scale evaluated by caseworkers, and the five-item scale was then dichotomized and used as an outcome in logistic regression analysis. Results showed that children with histories of CSA were about 182% more likely to have an adoptive caregiver rated as "inconsistently committed" than children without histories of CSA.

More recently, Testa et al., (2014) examined how the effect of child behavior problems on discontinuity was mediated by caregiver commitment, using the same dataset that is used in this study. Caregiver thoughts were measured using a four-point, one-item survey question that asked respondents how often they had thoughts about ending the

adoption or guardianship. Results showed that higher levels of child behavioral problems were associated with caregivers being more likely to express thoughts about ending the permanency relationship, which was also related to significantly higher odds of discontinuity. Moderation effects were found in the study, in that, living with a married partner and a closer biological relationship between the caregiver and child attenuated caregivers' thoughts of ending the relationship when children exhibited more behavioral problems. Also, among caregivers who reported having thoughts about ending the permanency relationship, the relationship between thoughts of ending the permanency relationship and discontinuity was attenuated when caregivers perceived their subsidy to be adequate. Overall, the study provided evidence that caregiver commitment is a useful proximal outcome to assess family adjustment difficulties prior to discontinuity, and that post-permanency services should be targeted to caregivers who report lower commitment to permanency and problems related to parenting an adoptive or guardianship child with significant behavioral challenges.

A small number of other studies have also measured caregivers' commitment to foster care placements. Dozier and Lindhiem (2006) investigated factors that were associated with foster mothers' commitment to children ages five and younger, using a scale developed by the authors named the "This Is My Baby" interview (TIMB; Bates & Dozier, 1998). TIMB is a semi-structured interview in which foster parents are asked eight open-ended questions about their feelings regarding the child, their long-term role in providing care for the child, and the nature of their relationship with the child; caregivers are also asked to expand on their brief responses as well (Bernard & Dozier, 2011). The scale is intended to measure "psychological adoption" (Bates & Dozier, 1998), in which a caregiver considers a child as his or her own and a part of the family, whether legal adoption is possible or not. Dozier and

Lindhiem (2006) found that mothers who had previously fostered more children were more committed than mothers who had fostered fewer children, and also that there was a negative relationship between foster parent commitment and the age of the child at placement. In addition, mothers who reported higher levels of commitment were more likely to foster children long-term or adopt them, providing evidence that caregiver commitment may be a useful proxy measure for placement continuity.

In another study, Lindhiem and Dozier (2007) examined the relationship between caregiver commitment (also using the TIMB scale) and child behavior problems as indicated by the CBCL; findings showed that higher CBCL scores were associated with less caregiver commitment. Finally, Koh, Rolock, Cross, and Eblen-Manning (2014) investigated the relationship between foster placement stability and caregiver commitment, represented by a dichotomous measure of whether or not foster parents expressed a willingness to provide a permanent home for children. Results showed that placement stability was related to parental commitment, with about 74% and 88% of children who had experienced multiple placements or stable placements, respectively, ever having a committed caregiver.

In regard to child behavior problems after legal adoption or guardianship, post-permanency studies consistently show that families experience worse outcomes if children exhibit difficult internalizing or externalizing behaviors (Belanger et al., 2012; Houston & Kramer, 2008; Henry, 1999; Nalavany et al., 2009; Reilly & Platz, 2004; Rosenthal & Groze, 1990; Wind, Brooks, & Barth, 2007). For example, Leung and Erich (2002) examined post-adoption family adjustment as measured by the Self-Report Family Functioning Scale (SFI; Beavers, Hampson, & Hulgus, 1985) using stepwise multivariate regression with a sample of intact adoptive families. The study found that one significant predictor of worse family

functioning was child behavior problems as indicated by the Eyberg Child Behavior

Inventory (ECBI; Eyberg & Ross, 1978). In addition, behavior problems accounted for about

17% of variance in the outcome. Two other studies examined parental satisfaction with

adoption as a post-permanency outcome (Reilly & Platz, 2003; Smith-McKeever, 2006), and

both showed that parental satisfaction was negatively related to the severity of children's

behavior problems as reported by the parent. Finally, Ward (2012) found that families with

adopted children who exhibited problematic social behaviors were more likely to use mental

health, family counseling, and mentoring services. For instance, parents who reported that

children usually or always exhibited two or more difficult behaviors (e.g., bullying, cruelty,

disobedience) were over four times more likely to report using mental health services than

parents who reported that children exhibited fewer or no difficult behaviors. These results

suggest that post-adoptive caregivers who report difficult child behaviors are also more likely

to need mental health support.

In summary, the literature on caregiver commitment and child behavior problems

indicates that generally, substitute caregivers may be less committed to children who exhibit

significant behavior problems, as well as children who are older or have histories of sexual

abuse (Dozier & Lindhiem, 2006; Lindhiem & Dozier, 2007; Nalavany et al., 2008; Testa et

al., 2014). In addition, there are likely caregiver factors that influence commitment, such as

previous foster parenting experience (Dozier & Lindhiem, 2006). Although caregiver

commitment is a useful proxy measure for post-permanency discontinuity, no studies have

developed a standardized measure of the construct specifically for post-adoption or

guardianship families.

Method

Participants

The sample for this study was comprised of 783 former foster youth ages 6 to 17 years old who resided in adoptive or guardianship arrangements in Illinois, and whose caregivers were surveyed by the Illinois Department of Child and Family Services (IDCFS) in either 2005 (Round 1) or 2008 (Round 2) to assess post-permanency outcomes. The population from which the Round I survey was drawn consisted of primary caretakers providing care for 22,563 children between the ages of 6 and 17 years old who had been taken into adoption or guardianship in Illinois between July 1997 and June 2002. In addition, all caregivers in the Round 1 sampling frame were receiving adoption or guardianship assistance as of June 30, 2005.

The Round 1 sampling frame was subdivided into two clusters based on where the child originally came into contact with the child welfare department—either Cook County (Chicago), the most populous county in the state, or outside of Cook County. There were 16,742 children from Cook County and 5,821 children outside of Cook; all children were ages 6 to 17. The two geographical clusters were used for selecting two systematic samples in the Round 1 survey. Within each cluster, a systematic sampling fraction was set large enough to ensure the study samples included only one child per household. Of the 504 sampled cases, 346 caregivers (69%) completed interviews, 63 (13%) declined to participate, 77 (15%) were unable to be located, and the remaining 18 (4%) caregivers were deceased or the children had been absent from the home for more than 3 months at the time of the interview.

The population from which the Round 2 survey was drawn consisted of primary caretakers providing care for 4,155 foster children ages 12 to 17 who (1) were taken into adoption or guardianship between July 1997 and June 2004 and resided in the Chicago area, (2) had an active subsidy case between October 2007 and September 2008, and (3) had ever been assigned to the Illinois title IV-E Subsidized Guardianship Waiver Demonstration. Participants in the Round 2 survey were eligible for participation the Illinois Adoption Preservation and Linkages (APAL) program, a post-permanency needs assessment and service referral program designed to prevent placement disruption for adolescents who were placed in adoptive or guardianship homes (Koh & Rolock, 2010). Six months after the APAL intervention was implemented, a stratified random sample of 670 households from the population was drawn for the Round 2 survey. Specifically, 335 households were randomly chosen for the intervention group from those families assigned to the APAL intervention, and 335 households were randomly selected for the comparison group from those families who were not assigned to the APAL program. In cases where a family had more than one target child, the child with the earliest case opening date was selected as the focal child for both the APAL intervention and the Round 2 interview. Just 439 of the 670 randomly selected cases for the Round 2 survey consented to link their survey responses to administrative data, and two cases had to be dropped because survey data did not match foster care records, leaving a total sample of 437 households (a response rate of about 65%).

Questions in both post-permanency surveys were almost identical, and included items regarding caregiver and child characteristics, family relationships and social support, and caregiver thoughts about the permanency placement. Caregivers were interviewed by phone or in person to complete the surveys. Administrative data regarding child characteristics and

placement history were then obtained from the IDCFS Integrated Database and linked to the survey data for both rounds. Survey weights were available in the post-permanency dataset for both rounds of the survey, but these sampling weights differed across rounds (because the samples were taken from two different populations). Therefore, sampling weights were not included in the analyses presented below.

Measures

The predictor variable of interest in this study was child behavior problems, which was measured using scale scores on the Behavior Problems Index (BPI; Peterson & Zill, 1986). The BPI provides a total behavior score for children ages four and older based on caregivers' responses to 28 questions that assess a range of externalizing and internalizing behaviors, with higher scores representing worse child behavior problems (Peterson & Zill, 1986; U.S. Bureau of Labor Statistics, 2014). The BPI is one of the most widely used instruments to assess problematic child behavior, and estimates of internal consistency reliability for the total and subscale scores across numerous studies vary from about .75 to .89 (Guttmannova, Szanyi, & Cali, 2007; McLloyd & Smith, 2002). The variable for BPI score in the sample data was continuous, with values ranging from 0 to 28 ($M = 10.49$ and $SD = 7.61$)

Other child and family predictor variables derived from the post-permanency surveys were also included in multivariate OLS regression models because they potentially confound the relationship between caregiver commitment and child behavior problems. First, child demographic variables were included, including the target child's age in years, gender, and race. Race was assessed using only one variable for minority status, because the large majority of children in the sample (83%) were African-American, with a much smaller

percentage white (12%), and an even smaller percentage both non-African-American and non-white (5%). The reference group for the minority race variable was "white". Unfortunately, no data were available in the two post-permanency surveys regarding caregiver race.

Also included in regression models were several family- and community-level variables. Dichotomous variables were developed for caregivers' marital status (married vs. non-married) and caregivers' employment status (employed vs. not employed), and discrete variables were taken from the survey data that indicated the number of adults in the home and the total number of children under the age of 21 in the home. Annual family income was derived from a survey question that asked caregivers to estimate their annual income, with seven response options that corresponded to increments of $5,000 to $20,000. Thus, the income variable was a discrete measure and ranged from 1 to 7, with higher values corresponding to higher incomes. Finally, two dichotomous variables were created to account for sampling differences (survey round and geographic location). Specifically, there were three possible values for households, including "Round 1: non-Cook", "Round1: Cook", and "Round 2: Cook". Thus, the two dichotomous sampling variables each had indicator values of "Round 1: Cook" and "Round 2: Cook", respectively, with "Round 1: non-Cook" as the reference category for both.

The outcome variable of interest in this study was caregiver commitment, measured using a multi-item scale derived by means of exploratory and confirmatory factor analyses (see the procedure described below). A latent variable for caregiver commitment was hypothesized to cause responses to 13 items in section H of the post-permanency survey, shown in Figure 2.1. The first eight items were Likert-type questions with five possible

response options that ranged from "strongly agree" to "strongly disagree" (corresponding to 1 and 5, respectively) and included a "neutral" option (corresponding to 3). The last five items were also Likert-type variables, with between 3 and 5 response options each. Eight of the 13 variables in section H were reverse scored prior to analyses (items H1, H2, H4, H7, H8, H12, H13, and H14) so that higher numbers indicated higher caregiver commitment to the adoption or guardianship. In addition, items H15 and H16 were re-coded so that numbers 1, 2, and 3 corresponded to "no", "maybe/don't know", and "yes", respectively. All 13 variables in section H showed negatively skewed distributions because caregivers tended to indicate positive responses, or higher response values.

"Thoughts About Your Adoption/Guardianship"		Variable Name
H1.	I feel confident that I can meet [NAME'S] needs.	*meetneed*
H2.	[NAME] seems attached to me and other family members	*attach*
H3.	The main problem in my family now is [NAME'S] behavior or emotional problems	*problem*
H4.	I am able to manage [NAME'S] behavior.	*manage*
H5.	I always feel angry with [NAME].	*angry*
H7.	I feel close to [NAME].	*close*
H8.	I feel pleasure in parenting [NAME].	*pleasure*
H11.	If I could, I would end this adoption/guardianship.	*endthis*
H12.	Overall, would you say the impact of [NAME'S] adoption/guardianship on your family has been…	*famimp*
H13.	How smooth was your family's adjustment to the adoption/guardianship?	*famadj*
H14.	How often do you think of ending the adoption/guardianship?	*thinkend*
H15.	Would you consider adopting or obtaining guardianship again in the future?	*again*
H16.	Would advise others to adopt/obtain guardianship?	*advise*

Figure 2.1. Survey Questions Related to Caregiver Commitment

Data Analysis

Exploratory factor analysis. In this study, exploratory factor analysis (EFA) was used to evaluate the internal structure of a scale designed to measure caregivers' commitment to an adoption or guardianship placement. EFA is useful to help determine whether the items on a scale are factorable, or if the variance in scale items can be explained by one or more latent constructs that cause item responses (Pett, Lackey, & Sullivan, 2003). The latent construct of interest in this study was caregiver commitment, which was hypothesized to cause the responses to 13 items in section H of the post-permanency surveys shown above.

For EFA analyses, principal axis factoring was used as the factor extraction method because principal axis factoring is recommended over the maximum likelihood method when there may be a violation of the assumption of multivariate normality in the data (Beavers et al., 2013; Costello & Osborne, 2005). Also, oblique, rather than orthogonal, factor rotation was implemented, because if more than one factor was found to affect scores on the commitment scale, it was expected that factors would be correlated. In addition, previous studies have shown that even if multiple factors are not suggested by an EFA model, oblique rotation returns a similar solution to orthogonal rotation (Costello & Osborne, 2005).

This study used several criteria to assess the factorability of the scale and specify the final factor structure. First, a scree plot was estimated to determine the approximate number of factors to retain (Williams, Brown, & Onsman, 2010). Specifically, the number of factors above the "elbow" in the curve of the scree plot indicated the appropriate number of factors for the EFA model (Beavers et al., 2013). Eigenvalues were also used to help determine the number of factors to retain for rotation, with values over 1.0 indicating that a factor may explain a significant portion of shared variance, but eigenvalues were not used as the sole

criteria for determining the number of factors, as this method tends to recommend the retention of too many factors (Costello & Osborne, 2005). Finally, this study also used the following criteria to assess the suitability of the final factor model: factor loadings for each variable over .32 and low cross-loadings, Kaiser-Meyer-Olkin (KMO) item and scale average values over .70, and low off-diagonal values in the anti-image and residual matrices (Beavers et al., 2013; Costello & Osborne, 2005; Pett et al., 2003). All EFA analyses were conducted using Stata 12 software (StataCorp, 2011b).

Reliability. Internal consistency reliability refers to the homogeneity of items within a scale or subscale designed to measure a single construct or dimension (DeVellis, 2003). More specifically, internal consistency reliability provides a measure of the degree of relatedness for items on a scale, and is determined by the amount of shared variance between items as a proportion of the total scale variance (Bhattacherjee, 2012). The amount of shared variance then, according to classical measurement theory, corresponds to the amount of variance attributable to a single, latent variable (DeVellis, 2003). An important feature of internal consistency reliability is that it refers to the reliability of scores rather than the test itself (Thompson, 2004). Reliability is a useful measure of scale quality, because low internal consistency reliability diminishes score validity as well as estimates of effect sizes (Baugh, 2002). In the current study, reliability for the caregiver commitment scale suggested by EFA analyses was estimated using Cronbach's α or *alpha*, a commonly used measure for internal consistency reliability (DeVellis, 2003). Alpha was calculated for the scale using the combined sample of all survey respondents ($N = 783$), as well as for each of the two subsamples that represented Rounds 1 and 2 of the post-permanency survey ($n = 346$ and

437, respectively). All reliability analyses were conducted using Stata 12 software (StataCorp, 2011b).

Confirmatory factor analysis. Confirmatory factor analysis (CFA) provides a means to test whether a hypothesized measurement factor model fits empirical data from a scale designed to measure one or more latent constructs. A unique advantage of CFA is the ability to partition variance in item responses into variance attributable to the "true scores" of latent variables and variance attributable to measurement errors (Bowen & Guo, 2012). Thus, a central objective of the CFA process is to determine an error-free measure for latent variables. CFA allows one to confirm latent constructs underlying a scale, relationships between constructs and items, and relationships between constructs. Unlike exploratory factor analysis (EFA), in CFA the researcher must specify the number of constructs, which items load on which constructs, and the relationships between constructs prior to model fitting (Thompson, 2004). In addition, CFA allows a researcher to specify parts of a factor model that are not specified in EFA. For example in CFA, error covariances may be non-zero, some or all factors may be correlated, and factor correlations may be constrained to be a particular value or equal (Thompson, 2004).

CFA also allows one to compare the results of model fit statistics for a hypothesized measurement model to alternative models with different specifications. In this way, researchers can be more confident that model specification for the scale is appropriate (Cabrera-Nguyen, 2010; Thompson, 2004). However, researchers caution that this process should proceed according to theory and prior expectations for the data. Otherwise, CFA becomes exploratory and the chances of achieving an appropriate fit increase as more models are tested (Thompson, 2004).

In this study, CFA was implemented to determine if a hypothesized measurement model for caregiver commitment suggested by EFA adequately fit the data. In keeping with best CFA practices, the post-permanency survey sample was split into test and validation subsamples, using Round 2 and Round 1 respondents, respectively (Bowen & Guo, 2012; Cabrera-Nguyen, 2010). Then, a measurement model was developed using the test subsample, and model fit was confirmed in the validation subsample. This process was followed in order to show that any changes made during CFA that improved model fit in the test subsample (such as the addition of correlated variables) were not just artifacts of the test data, and that adequate fit statistics could also be obtained using the validation subsample with no additional changes. All CFA analyses were conducted using Mplus 7 software (Muthén & Muthén, 2012).

Several model fit statistics were estimated in CFA analyses to assess model fit. First, a chi-square test of model fit was used to show whether the covariance matrix determined by empirical responses differed significantly from an implied covariance matrix determined by the specified measurement model, with a non-significant chi-square statistic (i.e., $p \geq .05$) indicating good model fit (Bowen & Guo, 2012). However, because model chi-square is sensitive to sample size, with larger samples more likely to result in a significant chi-square (Kahn, 2006), additional fit indices were also compared. Specifically, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) were used to assess measurement models, with values over .95 indicating good fit, and Root Mean Square Error of Approximation (RMSEA) was assessed, with RMSEA values of .06 or less indicative of a good model fit (and a 90% confidence interval for the RMSEA statistic with an upper bound less than .06; Cabrera-Nguyen, 2010; Thompson, 2004).

Multivariate regression. Ordinary least squares (OLS) regression was implemented in this study to test whether there was significant relationship between child behavior problems and caregiver commitment. Multivariate OLS regression is useful for determining the relationship between a predictor variable and an outcome variable, holding the effects of all other covariates constant (Berk, 2004). The *t* statistic may be used to test whether the coefficients associated with individual predictor variables are significant, indicating a statistical relationship between the predictor variable and the outcome, net the effects of other predictors. In OLS regression, the *F* statistic may also be used to test whether variation in the dependent variable explained by the regression model is significant, and R^2 provides an indication of the proportion of variation in the dependent variable that is explained by the set of predictor variables (Kutner, Nachtsheim, & Neter, 2008).

The research question of interest in this study is whether there is a negative relationship between child behavior problems and caregiver commitment. Specifically, based on previous foster care research, it was hypothesized that caregivers who rated their children as having more behavior problems would also report lower commitment to an adoption or guardianship. Thus, a one-tailed test of significance was used to assess the relationship between child behavior problems and caregiver commitment. Two-tailed tests of significance were used for all other predictor variables included in regression models. Table 2.4 below contains more information about the hypothesized direction of regression coefficients and the results of significance testing using the t-statistic.

Results

Sample Description

The combined sample of Round 1 and 2 respondents consisted of 783 child-caregiver dyads, or households. Children in the sample were approximately 53.38% male ($n = 418$), and a majority (87.74%; $n = 687$) were minority race. The total number of children in homes ranged from 0 to 12, with an average of 3.08 children ($SD = 1.75$). Also, youths' ages at the time of interview ranged from 6 to 19, with an average age of 13.76 ($SD = 3.03$). About 27.08% ($n = 212$) of children were placed in guardianship homes and the rest were placed in adoptive homes.

In regard to caregivers in the sample, approximately 42.40% were married ($n = 332$) and about 43.97% were employed ($n = 343$). A little over half of households (54.78%; $n = 429$) had at least two adults in the home, with the average number of adults being 1.66 ($SD= .71$). Annual family income ranged from under \$5,000 ($n = 56$) to over \$81,000 ($n = 45$), with an average annual income of slightly less than \$40,000 ($M = 3.84$ and $SD = 1.48$, using the seven-category income scale described above). Also, 77.27% of the households ($n = 605$) were sampled from Cook County, and the rest of the households were sampled from other locations in Illinois.

Bivariate Correlations

Pairwise correlations between the 13 caregiver commitment response items were first examined to determine if all, or a subset, of the variables may be factorable. Results indicated that only 7 of the 13 variables had pairwise correlations that were greater than or equal .30 and less than or equal to .85 (H4, H5, H7, H8, H11, H12, and H14; see Table 2.1), suggesting that these seven variables may be caused by a common factor (Pett et al, 2003). A careful

examination of the survey questions shows why the other six questions may have showed low correlations to some of the other items. For example, H1 (*meetneed*) assessed a caregiver's material, financial, psychological, and social resources rather than commitment; H2 (*attach*) measured the child's attachment or commitment to the family rather than the caregiver's commitment to the child; H3 (*problem*) assessed how difficult the child's behaviors were, but only relative to other hardships; and H13 (*famadj*) measured how well the family adjusted relative to prior expectations. Last, both H15 (*again*) and H16 (*advise*) were likely influenced by many other factors besides a caregiver's commitment to the adoption or guardianship, such as the caregiver's age, social network, and satisfaction with child welfare services.

In contrast, the seven items that showed higher pairwise correlations directly assessed different facets of the caregiver's relationship with the target child. For example H4 (*manage*) measured how difficult the caregivers perceived the children's behavior to be, regardless of external circumstances. Four of the questions (H5, H7, H8, and H12) evaluated affective aspects of the caregiver's relationship with the child. Finally, H11 (*endthis*) and H14 (*thinkend*) assessed the caregiver's thoughts or intentions about ending the adoption or guardianship.

Table 2.1. Correlation Matrix for Caregiver Commitment Variables

	manage	*angry*	*close*	*pleasure*	*endthis*	*famimp*	*thinkend*
manage	1.00						
angry	0.40	1.00					
close	0.30	0.34	1.00				
pleasure	0.42	0.34	0.52	1.00			
endthis	0.33	0.37	0.35	0.47	1.00		
famimp	0.41	0.28	0.33	0.41	0.41	1.00	
thinkend	0.33	0.31	0.32	0.40	0.57	0.52	1.00

Note: All Pearson's correlations were statistically significant at the $p < .001$ level

EFA and Cronbach's Alpha

The first EFA model was estimated with the number of factors not specified, using the seven items with acceptable inter-item correlations. A total of 18 cases were missing data on one or more of the seven variables in the model, leaving a sample of 766 cases. Four factors were indicated in the initial model, but the eigenvalues for all but the first factor were less than 1.00. Further, a scree plot indicated that only one factor should be retained for rotation (see Figure 2.2). Thus, a model with only one factor was estimated, and the results indicated a suitable factor model.
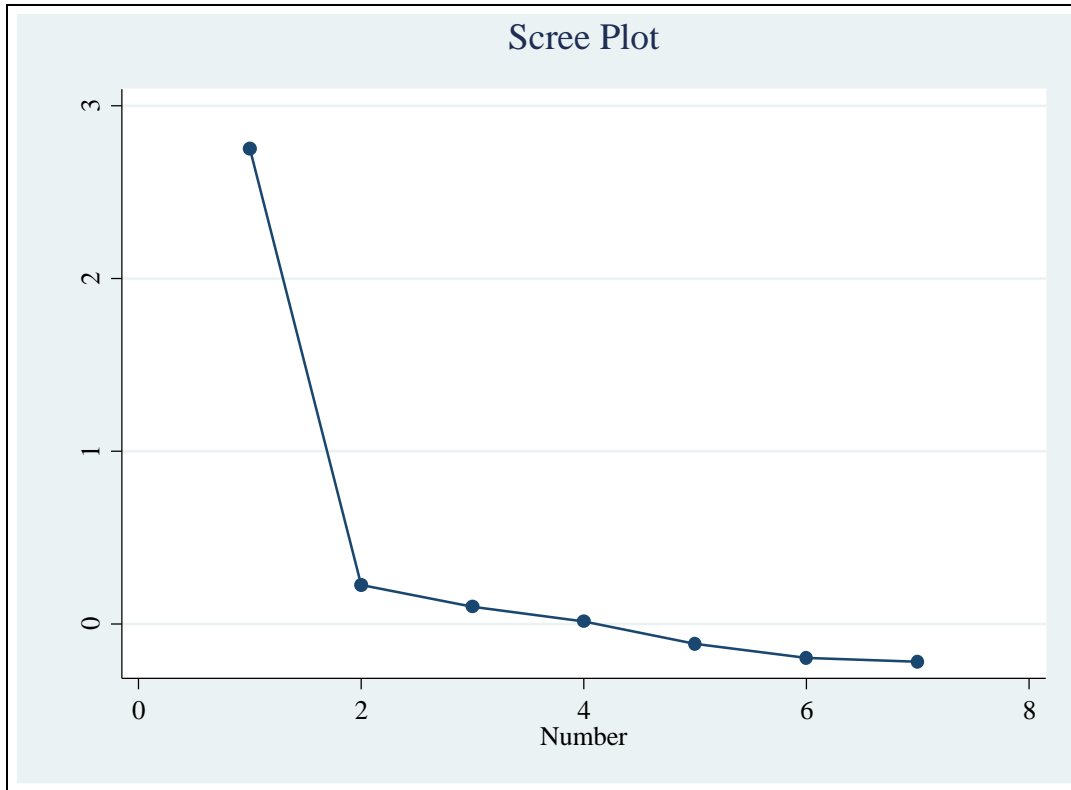
Figure 2.2. Scree Plot

All factor loadings in the one-factor model were greater than .52; individual KMO values were over .80 (with an overall KMO statistic of .84); and R^2 for individual items ranged from .27 to .47. Table 2.2 displays both the distribution of responses across scale items and item factor loadings for the one factor scale. The sample size of 783, or a subject-to-variables ratio of about 110:1, was sufficient to provide a reliable factor solution, particularly given the moderate to high factor loadings of all seven items (Beavers et al., 2013; Pett et al., 2003).

Table 2.2. Caregiver Commitment Items: Responses and Factor Loadings ($N = 766$)

Variable	% Responses (n)					Factor Loading
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
manage	50.57% (396)	38.44% (301)	5.75% (45)	2.94% (23)	1.53% (12)	0.57
angry	1.02% (8)	3.45% (27)	8.17% (64)	39.21% (307)	47.25% (370)	0.52
close	73.47% (576)	22.45% (176)	2.30% (18)	0.51% (4)	0.38% (3)	0.59
pleasure	64.75% (507)	27.46% (215)	4.47% (35)	1.79% (14)	0.77% (6)	0.69
endthis	1.28% (10)	1.53% (12)	2.17% (17)	22.61% (177)	71.65% (561)	0.68
	Very positive	Mostly Positive	Mixed	Mostly Negative	Very Negative	
famimp	59.90% (469)	25.93% (203)	11.49% (90)	1.02% (8)	1.02% (8)	0.64
	Never	Not Very Often	Sometimes	Frequently		
thinkend	82.76% (648)	6.77% (53)	7.79% (61)	1.92% (15)		0.68

Notes: Rows do not sum to 100.00% due to some cases missing data on variables
manage, *close*, *pleasure*, *famimp,* and *thinkend* were reverse-scored for analyses

Cronbach's alpha was estimated for the caregiver commitment scale to assess internal consistency reliability. Alphas for the full, Round 1, and Round 2 samples were .81 ($N =$ 783), .77 ($n = 346$), and .82 ($n = 437$), respectively. Therefore, all estimated alphas were within the "respectable" to "very good" range for scales used in scientific research as suggested by DeVellis (2003).

CFA

Results of CFA analyses are presented in Table 2.3 below. As the table shows,

modifications were made to the initial model in order to achieve adequate fit in the test

subsample. Specifically, five errors were allowed to correlate based on modification indices

and substantive interpretation (Bowen & Guo, 2012). The need for correlated errors in the

measurement model indicates that there is shared variance between items not accounted for

by the caregiver commitment variable (Gerbing & Anderson, 1994).

Note that all three estimated CFA measurement models were identified with either 14

or 9 degrees of freedom, and sizes for both test and validation subsamples were adequate,

with $n = 434$ and 345 cases, respectively, due to a few cases missing data on all the variables.

These subsample sizes were sufficient according to general rules of thumb that recommend

more than 200 cases or more than 10 cases per estimated parameter for CFA models (Bowen

& Guo, 2012; Kline, 2005). A graphical representation of the modified caregiver

commitment model is displayed in Figure 2.3, with the estimated standardized factor

loadings shown for each variable in the model estimated with the test subsample.

CFA results of the modified model using both the test and validation subsamples

provided evidence of good model fit for the data (rows 2 and 3 of Table 2.3, respectively).

Specifically, in both subsamples, chi-square was not statistically significant ($p > .05$), CFI

and TLI were both larger than the recommended .95, and RMSEA was less than .06. In

addition, all estimated factor loadings were statistically significant at the $p < 0.001$ level.

Finally, the estimated CFA was theoretically plausible because all variables related to

affective, cognitive, or behavioral aspects of caregiver commitment, as noted above.

However, the upper bound of the 90% confidence interval for RMSEA estimated with the

validation sample was slightly above the recommended cut-off value of .06. In addition, the

need for correlated errors challenges the confirmatory nature of CFA, because changes were

made to the initial model post hoc, with the aid of modification indices.

Table 2.3. CFA Results: Fit Indices by Model

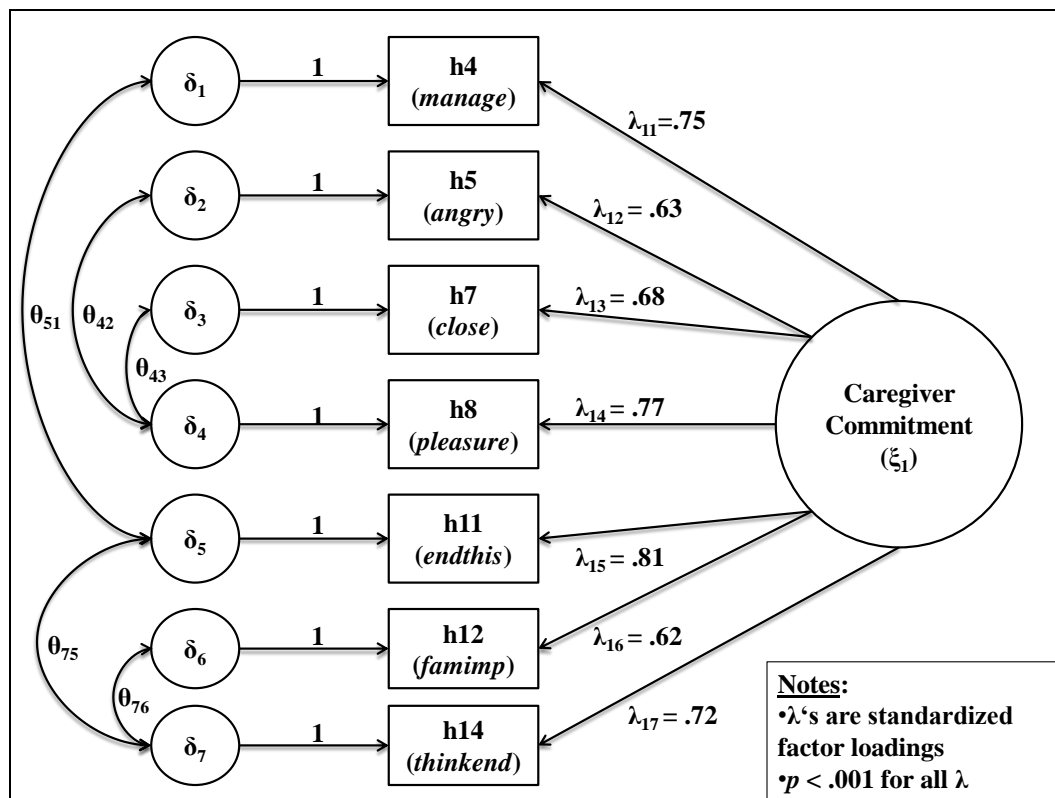| Subsample	Model	Chi-square test of model fit	df	CFI	TLI	RMSEA (90% C.I.)
Test ($n = 434$)	Hypothesized model: 7 variables, 0 correlated errors	82.94 ($p = 0.00$)	14	0.96	0.94	0.11 [0.09,0.13]
	Modified model: 7 variables, 5 correlated errors	10.17 ($p = 0.34$)	9	1.00	1.00	0.02 [0.00,0.06]
Validation ($n = 345$)	Modified model: 7 variables, 5 correlated errors	12.28 ($p= 0.20$)	9	1.00	0.99	0.03 [0.00,0.07]

Figure 2.3. Modified CFA Model (Round 2 Data, $n = 434$)

Multivariate Regression

Based on the results of EFA, reliability analyses, and CFA, the caregiver commitment

variable was deemed an appropriate variable to use in research. Therefore, the commitment

measure was created by summing scores from the seven variables shown in Figure 2.3 above

(i.e., *manage*, *angry*, *close*, *pleasure*, *endthis*, *famimp*, and *thinkend*). The average score for

caregiver commitment in the sample was 30.70, and values ranged from 12 to 34. In addition,

the distribution of caregiver commitment was non-normal, with skew = -1.76 and kurtosis =

6.79. Indeed, a Shapiro-Wilk test indicated significant non-normality for the measure

(W=.86; $p < .001$).

Next, an OLS regression model was estimated to assess the relationship between

child behavior problems and caregiver commitment, net the influence of several child and

family covariates. Because heteroskedasticity was detected from residual plots and results of

a Breusch-Pagan/Cook-Weisberg test ($\chi^2 = 189.22$; $p < .001$), the regression model was

estimated with robust standard errors. Specifically, the *vce(robust)* option was used in Stata

for the Huber-White sandwich estimator, a method robust to heteroskedasticity if

observations are independent (Huber, 1967; StataCorp, 2011a; White, 1980). The mean

Variance Inflation Factor (VIF) for all variables in the regression model was 1.49, and no

VIF was greater than 3.16, so no remedial measures were warranted for multicollinearity. In

addition, Cook's distance was estimated for all the observations, and results indicated no

problem of influential outliers.

Table 2.4 contains a summary of the estimated coefficients for the OLS regression

model estimated with robust standard errors. Due to listwise deletion for cases missing data

on one or more variables, the analysis sample was 725 cases. Consistent with the main

hypothesis of this study, the results indicate that, other things being equal, a one point increase in a child's BPI score was associated with a .23 point decrease in the caregiver commitment measure ($p = .000$). In addition, holding the effects of all other variables constant, a one year increase in a child's age was associated with a .16 point decrease in caregiver commitment ($p = .000$), and guardianship, as compared to adoption, was associated with caregiver commitment scores that were .60 lower ($p = .045$). None of the other covariates in the regression model were statistically significant at the $p < .05$ level. However, there were two statistical trends in that, all other things being equal, each additional child in the home was related to a .12 increase in the caregiver commitment measure ($p = .059$), and caregivers of minority race children reported commitment scores that were .60 lower than caregivers of white children ($p = .083$). Finally, an F-test of model fit showed that there was a significant regression relation in the population ($F[12, 712] = 19.04$; $p = .000$), and R^2 indicated that the model explained about 30% of the variance in caregiver commitment.

Table 2.4. Results of OLS Regression Analysis ($N = 725$)

Variable	Hypothesized Direction of Relationship	Estimated Regression Coefficient (Robust SE) Using Caregiver Commitment Score as the Outcome
BPI score	-	-0.23 (0.02)***
Caregiver married (not married)	+/-	0.05 (0.26)
Number of adults in the home	+/-	0.10 (0.17)
Caregiver employed (not employed)	+/-	-0.03 (0.25)
Annual family income	+/-	0.00 (0.10)
Cook-Round 1 (non-Cook)	+/-	0.16 (0.32)
Cook-Round 2 (non-Cook)	+/-	-0.40 (0.37)
Guardianship (adoption)	+/-	-0.60 (0.30)*
Total number of children in the home	+/-	0.12 (0.06)†
Child male (female)	+/-	0.12 (0.23)
Child age in years	+/-	-0.16 (0.04)***
Child minority race (white)	+/-	-0.60 (0.35)†
Constant		35.59 (0.85)***
F-statistic		19.04***
R^2		0.30

Notes: $^{\dagger}p < .10$; $*p < .05$; $***p < .0001$
For categorical variables, the reference group is shown in parentheses

Discussion

Results of this study provide support for the main hypothesis that caregivers who rate their adopted or guardianship children as having more behavior problems also report lower commitment to permanency. This finding is consistent with previous studies that show increased risk for child and family difficulties and/or placement disruption, both pre- and post-finalization, when adopted or guardianship children exhibit significant behavior problems (Barth & Miller, 2000; Belanger et al., 2012; Farmer, 2010; Houston & Kramer, 2008; Henry, 1999; Leung & Erich, 2002; Nalavany, et al., 2009; Park & Ryan, 2010; Reilly & Platz, 2004; Rosenthal & Groze, 1990; Ward, 2012; Wind et al., 2007). In addition, results

of this study suggest that caregivers of older children and guardianship caregivers may be less committed to permanency than caregivers of younger children and adoptive caregivers, respectively.

The finding in regard to child age is congruent with many previous studies which have also shown that older adopted or guardianship children experience greater risk for poor post-permanency adjustment than younger children (Averett, Nalavany, & Ryan, 2009; Groza & Ryan, 2002; Leung & Erich, 2002; Leung, Erich, & Kanenberg, 2005; Nalavany et al., 2009; Rosenthal & Groze, 1990). In regard to the statistically significant finding for guardianship, at first glance, this result suggests that the more legally binding option of adoption confers protective effects for permanency. However, higher commitment for adoptive caregivers may also reflect a selection effect, because it is also plausible that caregivers who become formally licensed for adoption are more committed to child permanency to begin with (prior to child placement) as compared to guardianship caregivers (see Koh & Testa, 2011; Testa, 2005). Guardianship caretakers are also more often relatives (Testa, 2004), and may be more likely to provide placement for children in response to unforeseen family needs or emergencies than adoptive caretakers, so they may be less prepared for the challenges of bringing a new child into the home.

In regard to the two statistical trends found in this study—that higher caregiver commitment was associated with both more children in the home and white race of the child—previous literature has found mixed impacts for both of these variables on post-permanency outcomes. For example, Ward (2012) found that more total children in adoptive homes was related to higher support service use for families, but McDonald and colleagues (2001) found that adoptive families reported better adjustment when more adopted children

were in the home, but worse adjustment when more total children were present in the home. Similarly, previous studies that examined the impact of race on post-permanency outcomes have found mixed results. For instance, Berry et al. (2007) showed that white race of the child had a positive influence on post-adoption placement continuity at 6 months follow-up, but not at 12 months follow-up. Nalavany and colleagues (2009) demonstrated that African-American parents were less satisfied with adoption than non-African-American parents, but Belanger and colleagues (2012) found virtually no placement discontinuity in a sample of rural African-American adoptive parents of youth with previous child welfare involvement. Thus, it seems possible that there are contextual, or moderating, factors such as socioeconomic status, social support, or service availability that influence the relationship between the number of children in the home or child race and post-permanency outcomes. In addition, it is important to note that previous post-permanency studies have been hampered by serious limitations in study design, including limited attention to selection bias, poor construct and measurement development, the use of small convenience samples, and short follow-up windows after permanency (Dhami et al., 2007; White, 2015), which may be lead to contradictory findings across studies.

There are several limitations for this study. Perhaps the most significant limitation is the cross-sectional design, because the direction of relationship between child behavior problems and caregiver commitment cannot be determined. Therefore, it is also possible that children respond to caregivers who demonstrate less commitment by exhibiting more externalizing or internalizing behaviors. In addition, the caregiver commitment measure was limited to the response items that were available in the survey. An ideal caregiver commitment survey would contain multiple items that correspond to the different behavioral,

affective, and cognitive components of caregiver commitment, because commitment is likely a complicated construct, with possibly several sub-factors.

The need for correlated errors in the model also shows that there is shared variance between items that is not accounted for by the caregiver commitment variable. This is a significant limitation because in general, post-hoc modifications to CFA models to improve model fit are generally not recommended unless the modifications are few; theoretically plausible, and have little impact on other parameter estimates such as factor loadings (Bowen & Guo, 2012; Bowen, 2014). The five correlated errors in the measurement model shown in Figure 2.3 are theoretically justifiable and suggest possible hierarchical factors or subscales for different facets of commitment. For example, one correlated error was for items H7 ("I feel close to [NAME]") and H8 ("I feel pleasure in parenting [NAME]."). Both of these items measure affective components of the relationship between the caregiver and child and may represent an affective sub-factor that would be better assessed using a hierarchical measurement model. Also, allowing the errors to correlate did not significantly change parameter estimates. For instance, factor loadings were positive and statistically significant (i.e., $p < .001$ for all items) in models estimated both with and without the correlated errors. However, the need for five correlated errors in a seven-item model is problematic, and suggests that the results of CFA should be interpreted with caution, and that this scale should be used as a foundation for future scale development.

Conclusion

Despite the limitations, this study provided validation evidence for a measure of caregiver commitment by means of EFA, reliability analyses, and CFA, with data from a large sample of post-adoption and guardianship caregivers. Further, the measurement model

was found to have similar properties using both the test and validation sub-samples, which had considerably different respondent characteristics. Although caregiver commitment is a useful proximal construct to identify post-permanency problems before family crisis or placement discontinuity occurs, few previous studies have examined outcomes for adoption or guardianship families after finalization, and no post-permanency studies have attempted to rigorously measure caregiver commitment. Future studies should test larger, more comprehensive scales for caregiver commitment that have been designed and revised through a process of expert feedback and cognitive pre-testing with diverse populations.

This study also found that child behavior problems were negatively related to caregiver commitment. This finding is consistent with a large body of research that shows children who exhibit difficult behaviors place significant strain on substitute caregivers and their families. Child welfare agents need to develop a deeper understanding of relationship dynamics and needs common to post-permanency families. At a minimum, caregivers should be encouraged to report any significant child behavior problems prior to finalization of the adoption or guardianship, and be referred to post-permanency support services as needed to prevent deleterious case outcomes such as caregiver burn-out and placement discontinuity.

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PAPER III

EVALUATION OF THE ILLINOIS ADOPTION PRESERVATION AND LINKAGES
PROGRAM (APAL) USING A REGRESSION DISCONTINUITY DESIGN

Abstract

This study evaluated the impact of the Illinois Adoption Preservation and Linkages (APAL)

program on post-adoption and guardianship families using a regression discontinuity design.

APAL is a needs assessment and service referral program designed to prevent adjustment

difficulties and foster care reentry, or post-permanency discontinuity, for adolescents residing

in legally permanent adoptive or guardianship homes. The purpose of this study was to

examine whether APAL participation was associated with two outcomes considered proximal

to discontinuity. Specifically, it was hypothesized that APAL would be related to fewer child

behavior problems and higher caregiver commitment to permanency. Results showed that

APAL participation was associated with fewer child behavior problems, but findings related

to caregiver commitment were inconclusive. Results suggest implications for intervention

design, practice, and future research with post-adoption or guardianship families.

Evaluation of the Illinois Adoption Preservation and Linkages (APAL) Program Using

a Regression Discontinuity Design

The number of children in foster care in the United States has decreased from a

historical high of over 500,000 children in the mid-1990's to about 407,000 in 2011 (Testa,

2004; USDHHS, 2011). This decrease in the number of children in care can be at least

partially attributed to changes in child welfare policy and practice over the past several

decades that have led to increases in both adoptions and legal guardianships of foster youth

(Hartinger-Saunders, Trouteaud, & Matos-Johnson, 2014; Nalavany, Ryan, Howard, &

Smith, 2008; Simmel, Barth, & Brooks, 2007; Testa, 2004). For example, the number of

children adopted from public child welfare agencies rose from about 36,000 in 1998 to

approximately 52,000 in 2012 (Annie E. Casey Foundation, 2014; USDHHS, 1998), and

from 2003 to 2012 the percentage of exits from foster care due to adoption increased from

18% to 21% (USDHHS, 2013). Similarly, from 2003 to 2012, the percentage of exits from

foster care due to guardianship increased from 4% to 7% (USDHHS, 2013).

Federal child welfare policy has increasingly provided directives and incentives for

child welfare agencies to expedite permanency for foster youth through adoption and

guardianship when reunification is not possible (Allen & Bissell, 2004; Testa, 2004). For

instance, the Adoption and Safe Families Act of 1997 (ASFA) specified timelines for

terminating parental rights, provided exceptions to the requirement that child welfare

agencies show "reasonable efforts" to reunify foster youth with their biological parents prior

to pursuing adoption, and legitimized guardianship as a valid permanency goal for foster

youth (Allen & Bissell, 2004; Golden & Macomber, 2009). More recently, the Fostering

Connections to Success and Increasing Adoptions Act of 2008 provided incentives for states

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to find adoptive homes for children with special needs (e.g., older or disabled youth), created more opportunities for adoption assistance for children with special needs, and expanded the availability of subsidized guardianship payments for relatives (Children's Defense Fund, 2008).

The increase in foster youth adoptions and guardianships over the past two decades is generally a positive development for child-welfare involved youth. However, even after adoptions and guardianships are legally finalized, some former foster youth still experience placement instability. Estimates for rates of foster care reentry after adoption or guardianship, or *discontinuity* (Testa et al., 2014), range from about 2% to 15%, with higher risks for certain at-risk groups, such as adolescent youth or youth with mental health or behavior problems (Barth, Berry, Yoshikami, Goodfield, & Carson, 2001; Barth & Miller, 2000; Berry, Propp, & Martens, 2007; Festinger, 2002; Hartinger-Saunders et al., 2014; Henry, 1999; Koh & Testa, 2011; McDonald, Propp, & Murphy, 2001; Selwyn, Wijedasa, & Meakings, 2014; Testa, 2004). Although the risk for discontinuity is much lower than child welfare scholars feared after the passage of ASFA, it is also much higher than the risk of foster care entry for the general population, which is about .34% (USDHHS, 2011).

Post-permanency discontinuity is generally considered to be a negative child welfare outcome, because adoptive and guardianship families are screened and carefully vetted by child welfare agencies and courts prior to legal finalization. In addition, placement instability has been associated with numerous negative outcomes for foster youth, including behavior problems, mental health issues, and poor educational achievement (Bruskas, 2008; Bruskas, 2010; D'Andrade, 2005; Newton, Litrownik, & Landsverk, 2000; Rubin, O'Reilly, Luan, & Localio, 2007; Ryan & Testa, 2005; Stone, 2007). Placement changes are often difficult for

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foster youth, who have already experienced traumatic experiences related to child abuse or neglect, and research shows that adverse childhood experiences (ACE's) are associated with poor adult outcomes (Anda et al., 2006; Brown et al., 2009). For instance, people who report four or more ACE's are between four and 12 times more likely to experience alcoholism, drug abuse, depression and suicide in adulthood as compared to adults who report no ACE's (Felitti et al., 1998).

Therefore, post-permanency interventions are needed to support families after legal finalization to prevent poor family adjustment and discontinuity. A limited number of peer-reviewed studies have examined the impact of post-adoption interventions on child or family outcomes and generally found positive results. For example, Berry and colleagues (2007) showed that post-adoption families who participated in Intensive In-Home Services (IIS) to address child behavior problems were more likely to be intact at 12 months follow-up, and that the number of days that families received IIS services was positively related to family intactness at 12 months. IIS services were provided to families with children at-risk for out-of-home placement within 72 hours, and services included intensive case management, family assessment and engagement, parenting training, and assistance to meet concrete material needs.

Similarly, in a qualitative study that assessed the impact of intensive adoption preservation services, Zosky and colleagues (2005) showed that post-adoption intervention helped parents better understand their children's behaviors and obtain services to help decrease children's behavior problems. Also, Belanger, Cheung, and Cordova (2012) employed mixed methods to examine the impact of flexible caseworker services on outcomes of rural African-American adoptive families and concluded that caseworker services were

essential for stable adoptions. Finally, Liao and Testa (2014) examined the impact of APAL on child and family permanency and well-being outcomes using the same data set this study examines, but with an instrumental variables design. The authors found that APAL was associated with less child behavior problems, higher caregiver commitment, and lower odds of placement discontinuity. Therefore, previous adoption studies generally suggest that flexible, family-centered post-permanency services provided by child welfare agencies after legal finalization have positive effects on child and family outcomes.

Method

Intervention Description

APAL is a post-permanency needs assessment and service referral program developed by the Illinois Department of Child and Family Services (IDCFS) and the Child and Family Research Center at the University of Illinois. The intervention was designed to prevent adjustment difficulties and discontinuity for adolescent children placed in legally permanent adoptive or guardianship homes (Koh & Rolock, 2010). APAL services were delivered via phone contact or home visits, and consisted of two components: (1) a brief caseworker assessment of child and family needs and (2) caseworker referrals to post-adoption services.

Liao (2014) provides a detailed description of the APAL program, but in general, IDCFS contracted with three private agencies in Illinois to provide APAL, and each APAL worker carried a caseload of between 25 to 40 families. Families were first contacted by letter to attempt to schedule a home visit to complete the APAL instrument. If families did not make contact with APAL agencies in response to the letter, efforts were then made to contact families by phone, and in person if needed. Ideally, APAL caseworkers completed

the APAL assessment with caregivers during home visits, but the assessment could also be completed by phone if necessary. APAL started on October 1, 2007 and services were provided for about a year, until program funding was discontinued by IDCFS (Liao, 2014). APAL is not a manualized intervention, but provides a stark contrast to post-permanency services as usual (SAU), in which there is typically no personal contact at all between child welfare caseworkers and families after legal finalization of an adoption or guardianship.

Research Question and Hypotheses

The research question of interest in this study is whether participation in APAL has a significant impact on children's behavior problems or caregivers' commitment to permanency. Therefore, it was hypothesized that, compared to routine post-permanency services-as-usual (i.e., SAU), APAL would be associated with:

(1) Less behavior problems of adopted or guardianship youth;

(2) Increased caregiver commitment to youth in adoptive or guardianship placements.

Study Design

Participants. The sample for this study was comprised of 437 former foster youth ages 12 to 17 years old who resided in adoptive homes in Illinois. The youths' caregivers were surveyed by the Illinois Department of Child and Family Services in 2008 as part of the second round of a post-permanency survey (Round 2) undertaken to assess family outcomes after adoption or guardianship. The population from which the Round 2 survey was drawn consisted of primary caretakers providing care for 4,155 foster children who (1) were taken into adoption or guardianship between July 1997 and June 2004 and resided in the Chicago area, (2) had an active subsidy case between October 2007 and September 2008, and (3) had ever been assigned to the Illinois title IV-E Subsidized Guardianship Waiver Demonstration.

Six months after the APAL intervention was implemented, a stratified random sample of 670 households from the population was drawn for the Round 2 survey. Specifically, 335 households were randomly chosen as the intervention group from those families assigned to the APAL intervention, and 335 households were randomly selected as the comparison group from those families who were not assigned to the APAL program. In cases where a family had more than one target child, the child with the earliest case opening date was selected as the focal child for both the APAL intervention and the Round 2 interview. Just 439 of the 670 randomly selected cases for the Round 2 survey consented to link their survey responses to administrative data, and two cases had to be dropped because survey data did not match foster care records, leaving a total sample of 437 households (a response rate of approximately 65%).

Questions in the post-permanency survey included items regarding caregiver and child characteristics, family relationships and social support, and caregiver thoughts about the permanent placement. As noted above, caregivers were interviewed by phone or in person to complete the surveys. Administrative data regarding child characteristics and placement history were then obtained from the IDCFS Integrated Database and linked to the survey data.

Sampling weights were included in the post-permanency dataset to account for sampling differences across six strata. For this sample, cases fell into one of six sampling strata according to whether they were assigned to APAL intervention or SAU, whether they were assigned to the subsidized guardianship experimental or comparison condition, and whether they were adoption or guardianship placements. Sampling weights were included in

descriptive and outcome analyses shown below to approximate results for the full Round 2 post-permanency survey population.

Regression discontinuity. This study used a regression discontinuity (RD) design to estimate the effects of the APAL intervention on two proximal outcomes related to post-permanency discontinuity, child behavior problems and caregiver commitment. Although widely used in economics, RD has received less attention and application in social work and other social sciences (Cook, 2008). However, the design has potential to be used in many social work applications because, under particular conditions, the design allows the estimation of treatment effects that are comparable to those obtained using randomized experiments, with weaker assumptions than those required in typical observational studies (Shadish, 2011).

The RD design may be applied in any situation where participants are assigned to treatment conditions on the basis of an assignment score or scores that reflect constructs such as merit, need, or age (Thomas, Lemieux, Rhodes, & Vlosky, 2011). In RD, assignment to treatment conditions (i.e., treatment versus control) is completely or partially determined by whether the value of a predictor variable is smaller than, or equal to or larger than, a fixed "cutoff" value. The assignment variable may or may not be correlated with the outcome, but if a correlation exists, the assignment variable must change smoothly with respect to the outcome so that any discontinuity at the cutoff may be interpreted as a treatment effect (Imbens & Lemieux, 2007).

Causal inference in RD. According to the Neyman-Rubin framework, participants in a study are selected into treatment or comparison groups, but they also have potential outcomes in both states. The *counterfactual* is what would have happened to participants had

they been selected into the alternative treatment condition (Guo & Fraser, 2010; Neyman, 1923; Rubin, 1974; Rubin 1986). *The fundamental problem of causal inference* (Holland, 1986) is that only one state for each group is observable. It is impossible to observe individual-level causal effects. But in a randomized experiment, estimation of an unbiased group-level or average treatment effect (ATE) is theoretically trivial because the probability of assignment to treatment is equal for all participants, and thus, randomization creates groups that are statistically equivalent, on average, in regard to baseline characteristics that may cause differences in outcomes (Shadish, Cook, & Campbell, 2002). In contrast, estimation of an unbiased ATE is problematic in observational studies because the probability of treatment assignment is unknown, and thus, characteristics other than treatment may differentially affect outcomes for treatment and control groups.

The RD design is unique among observational studies in that, treatment assignment is based on a cutoff score for an assignment variable, and thus, the probability of receiving or at least being offered treatment is known (Shadish, et al., 2002). Because participants in the neighborhood of a cutoff on either side are assumed to be similar on all characteristics other than treatment assignment, the RD design can be seen as creating local randomization around the cutoff (Imbens & Lemieux, 2007). Under this assumption, treatment participants just above the cutoff provide the counterfactual for those below the cutoff and vice versa. However, one drawback of RD is that the treatment effect estimated applies locally, to the neighborhood of the cutoff, rather than globally. This average treatment effect at the cutoff (ATEC) is limited in that extrapolation beyond the neighborhood of the cutoff requires stronger assumptions, such as constant treatment effect (DeGiorgi, 2005; Shadish, 2011).

Fuzzy or sharp discontinuity. When the probability of assignment to treatment jumps from 0 to 1 or from 1 to 0 at a cutoff value, the treatment assignment mechanism is completely known, and the design is said to be sharp regression discontinuity (SRD; Bloom, 2009). However, an estimation of the ATEC is also valid in fuzzy regression discontinuity (FRD) designs, where the probability of receiving treatment jumps by less than 1 (Lee & Lemieux, 2010). This allows the application of the RD design to situations where there is a stochastic component to treatment assignment near the cutoff. However, an important assumption for FRD is that participants have no more than imprecise control of the receipt of treatment. If participants have complete control, and can thus, self-select into conditions, the RD design is not valid (Lee & Lemieux, 2010).

The ATEC estimated in a FRD can only be said to apply to "compliers" in the study (Imbens & Lemieux, 2007), or those who would receive treatment if assigned to treatment and would not receive treatment if assigned to control (Angrist, Imbens, & Rubin, 1996). The ATEC for compliers may be estimated as the ratio of two discontinuities at the cutoff: the discontinuity in the outcome variable over the discontinuity in the probability of treatment (Lee & Lemieux, 2010). Alternatively, a two-stage least squares (2SLS) procedure may be implemented, in which treatment receipt is first modeled as a function of treatment eligibility, and then the outcome is regressed on the probability of treatment receipt and the assignment variable (Imbens & Lemieux, 2007). In this study, FRD regression models were estimated for both outcomes using 2SLS because, for each of the cutoff values examined, the probability of treatment changed by less than 1.

Assignment variable and cutoff scores. For youth in the study sample, the APAL intervention was allocated based on age, because program administrators were uncomfortable

with random assignment of children to treatment conditions. Specifically, youth that were either 13 or 16 years old on October 19, 2007 were assigned to treatment, and children ages 12, 14, 15, or 17 were assigned to the comparison condition of child welfare post-permanency SAU. Thus, the assignment variable for this study was child's age in years, and there were four discontinuities in the assignment variable that allowed for an estimation of the ATEC at four cutoff scores (i.e., ages 13, 14, 16, and 17). The age variable (*ch_agey*) was continuous, with a range of 12 to 17.89 ($M = 15.00$; $SD = 1.72$).

Treatment variables. Because this study required estimation of the ATEC for fuzzy discontinuities, two treatment variables were used in analyses. First, the dichotomous variable *apal* indicated whether participants were at or above the cutoff age in the assignment variable, with *apal* = 1 indicating that, based on age, a participant was eligible for the intervention and *apal* = 0 indicating that, based on age, a participant was not eligible for the intervention. Second, the variable *treatment* was a dichotomous caregiver-report variable that indicated whether the participant actually received APAL (i.e., contact from a caseworker to assess family needs), with *treatment* = 1 indicating that a participant did receive APAL and *treatment* = 0 indicating that a participant did not.

Outcome variables. Two outcome variables were of interest in this study. First, child behavior problems was measured using the variable *bpiscore*, a continuous variable with values that ranged from 0 to 27 ($M = 10.14$; $SD = 7.54$). This variable was derived from responses to the Behavior Problems Index (BPI), with higher numbers indicating more child behavior problems as reported by the caregiver. The BPI is a 28-item rating scale of children's behavior based on the Achenbach Child Behavior Checklist, and was found in one

study with an adolescent population to have a Cronbach's alpha coefficient of .92 (Brand &

Brinich, 1999).

Second, the variable for caregiver commitment, *commit*, was a scale derived from

summing caregiver responses to 7 questions in "Section H" of the Round 2 post-permanency

survey (see Figure 3.1 below). The first 5 items (i.e., H4-H11) were Likert-type questions

with five possible response options that ranged from "strongly agree" to "strongly disagree"

(corresponding to 1 and 5, respectively) and included a "neutral" option (corresponding to 3).

The last two items, H12 and H14, were also Likert-type variables with 5 and 4 response

options, respectively. Five variables in the commitment scale (i.e., items H4, H7, H8, H12,

and H14) were reverse scored so that higher numbers indicated higher caregiver commitment

to the adoption or guardianship. In a previous study (White, 2015), exploratory and

confirmatory factor analysis was used to provide evidence that a latent variable for caregiver

commitment caused responses to the 7 items shown in Figure 3.1. Also, Cronbach's alpha for

the caregiver commitment measure in the Round 2 sample was .82 (White, 2015), suggesting

that the scale was acceptable for research purposes (DeVellis, 2003). The caregiver

commitment variable in this study was continuous, with a range of 12 to 34 ($M = 30.09$; $SD =$

3.89).

"Thoughts About Your Adoption/Guardianship"	Variable Name
H4. I am able to manage [NAME'S] behavior.	*manage*
H5. I always feel angry with [NAME].	*angry*
H7. I feel close to [NAME].	*close*
H8. I feel pleasure in parenting [NAME].	*pleasure*
H11. If I could, I would end this adoption/guardianship.	*endthis*
H12. Overall, would you say the impact of [NAME'S] adoption/guardianship on your family has been…	*famimp*
H14. How often do you think of ending the adoption/guardianship?	*thinkend*

Figure 3.1. Survey Questions for the Caregiver Commitment Scale

Other variables. Eleven variables that related to child or parent characteristics were examined across APAL and non-APAL eligible families to determine if there were any statistically significant differences between groups. Child demographics were measured using two dichotomous variables for child gender and race. Specifically, the variable *ch_male* was coded 1 if a child was male and coded 0 otherwise, and *ch_minor* was coded 1 if a child was identified as non-white race and 0 if identified as white race. Similarly, two caregiver demographic variables, *cg_male* and *cg_married*, were coded 1 if a caregiver was male or married, respectively, and coded 0 otherwise. A third caregiver demographic variable, *cg_ageyr*, represented a caregiver's age, in years, as of Oct. 19, 2007. Several dichotomous caregiver variables that related to the caregiver's socioeconomic status were also examined. Specifically, variables named *employment*, *lessHSed*, and *equnder40K* were coded 1 if a caregiver reported having full-time employment, less than a high school education, and an annual income equal to or under $40,000, respectively, and coded 0 otherwise. Another dichotomous variable, *cg_kin*, was coded 1 if a caregiver had a kinship relationship with the adopted or guardianship child, and coded 0 otherwise. Finally, two

discrete variables for the number of children and adults in the home (*totalkids* and *adults*,

respectively) were also examined across APAL and non-APAL eligible groups.

SRD models. SRD models for each outcome were first estimated to determine

ATECs analogous to Intent-To-Treat effects (ITTs) for the APAL program. Specifically, for

SRD models, the probability of APAL treatment receipt was assumed to change from 0 to 1,

or 1 to 0, at each of the four cutoff scores. Although this assumption was not realistic, the

ITT provides valuable information for program planners and evaluators because it estimates

the ATEC for all people who were eligible for, or encouraged to receive, APAL in the

population, regardless of whether they actually received services from the program or not

(Fraser, Richman, Galinsky, & Day, 2009). As shown in the two estimated baseline SRD

models in Figure 3.2 below, *bpiscore* and *commit* were regressed on child age and APAL

eligibility.

bpiscore/commit = $\beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \varepsilon$

Figure 3.2. SRD Models

Hierarchical regression was used to test the sensitivity of SRD results to model

specification. Specifically, five and six additional models were estimated for BPI score and

caregiver commitment score, respectively, and the results were compared with the baseline

models in Figure 3.2. First, each of the two covariates found to be imbalanced between

treatment groups (*totalkids* and *guard*; see below) were included in regression models one at

a time. Next, an interaction term for *ch_agey* and *apal* was included (*age_apal*) to allow for

the relationship between the assignment variable and the outcome, and thus, the slope of the

estimated regression line, to differ for treatment and comparison groups (Lee & Lemieux, 2010). Then, consistent with the series, or polynomial approach to testing model specification (see DeGiorgi, 2005; Lee & Lemieux, 2010), two additional models were estimated with increasing flexibility in specification due to the inclusion of higher order polynomial terms (specifically, quadratic and cubic terms). Finally, for caregiver commitment, one additional model was estimated to incorporate multiple covariates found to be significant in prior models. Figure 3.3 below shows the alternative specifications of the baseline SRD models:

$bpiscore/commit = \beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \beta_3(totalkids) + \varepsilon$

$bpiscore/commit = \beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \beta_3(guard) + \varepsilon$

$bpiscore/commit = \beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \beta_3(age\_apal) + \varepsilon$

$bpiscore/commit = \beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \beta_3(ch\_agey)^2 + \varepsilon$

$bpiscore/commit = \beta_0 + \beta_1(apal) + \beta_2(ch\_agey) + \beta_3(ch\_agey)^2 + \beta_4(ch\_agey)^3 + \varepsilon$

$commit = \beta_0 + \beta_1(pred\_apal) + \beta_2(ch\_agey) + \beta_3(ch\_agey)^2 + \beta_4(totalkids) + \beta_5(guard) + \varepsilon$

Figure 3.3 SRD Alternative Models

FRD models. FRD models were also estimated for each outcome using 2SLS to determine the ATEC for compliers. The first stage model and two second stage models (one for each outcome) are shown in Figure 3.4 below.

$treatment = \gamma_1 + \gamma_2(apal) + \nu$

$bpiscore = \beta_0 + \beta_1(pred\_apal) + \beta_2(ch\_agey) + \beta_3(guard) + \varepsilon$

$commit = \beta_0 + \beta_1(pred\_apal) + \beta_2(ch\_agey) + \beta_3(ch\_agey)^2 + \beta_4(totalkids) + \beta_5(guard) + \varepsilon$

Figure 3.4. FRD Two-Stage Least Squares Models

In the first stage, APAL receipt (*treatment*) was regressed on APAL eligibility based on age (*apal*), and the predicted values for *treatment* (*pred_apal*) were estimated. Then, in the second stage models, the outcomes (*bpiscore* and *commit*) were regressed on the predicted values for treatment receipt (*pred_apal*) and other covariates derived from the best-fitting SRD models (see the results below). In the second-stage model, the coefficient for *pred_apal* (i.e., β_1) was the ATEC for compliers.

Results

Descriptive statistics for the sample by APAL eligibility are shown in Table 3.1. There were more similarities than differences between APAL and non-APAL groups. For example, in both groups, a little over half of the children were male and most youth were minority race. Also, in both groups the average number of adults in the home was typically less than two, the majority of caregivers were female, and the average age of caregivers' in 2007 was close to 55 years old. Finally, for both APAL and non-APAL groups, about 40% of caregivers had full-time employment, a little under a third of caregivers were married or had less than a high school education, and over three-fourths of caregivers had a kin relationship with the adopted or guardianship child.

There were also a few notable differences found between APAL and non-APAL groups. First, in APAL households, there were slightly more children on average ($M = 3.06$;

SE = .12) as compared to non-APAL households (*M* = 2.50; *SE* = .11), and this difference

was statistically significant (*p* = .001). In addition, only about 42% of children in APAL

homes were in guardianship placements as compared to approximately 55% for non-APAL

homes (*p* = .000). Therefore, youth who received APAL services were less likely to be in a

guardianship permanency arrangement than those who did not receive APAL services.

Although these two imbalanced covariates may call into question the validity of the RD

design, because twelve variables were examined in bivariate statistical tests, these variables

may also be imbalanced by chance (Lee & Lemieux, 2010). Indeed, self or caseworker

selection into treatment groups seems unlikely because the assignment variable, child's age,

was derived from administrative data and not amenable to child or caseworker manipulation.

However, even with imbalanced observed variables between treatment groups, the RD design

is still valid, at least around the area of the cutoff(s), if there is not also a jump in the

distribution of the imbalanced variables near the cutoff value(s) (Lee & Lemieux, 2010). In

this study, because both *totalkids* and *guard* differed significantly across treatment groups

and thus, potentially confound the relationship between APAL eligibility or receipt and the

outcomes, they were included in hierarchical regression models.

Last, a bivariate chi-square test using the weighted sample also showed that youth

who were eligible for APAL actually did receive the intervention, or contact from a

caseworker to assess family needs, more than those who were not eligible for APAL, with

55.07% of APAL families receiving the program as compared to 2.19% of non-APAL

households (p = .000). Therefore, only a little over half of the APAL households were

compliers, and a small percentage of non-APAL households received the intervention as

crossovers, with a discontinuity in service receipt between groups across cutoff scores of .5288.

Table 3.1. Sample Descriptive Characteristics (*N* = 437)

Variable	Weighted % or Mean (SE)	
	APAL eligible	Non-APAL eligible
Child male (female)	51.93	58.25
Child minority race (white)	97.89	96.13
Total number of children in the home***	3.06 (.12)	2.50 (.11)
Total number of adults in the home	1.62 (.05)	1.56 (.05)
Caregiver age in years as of 2007	54.92 (.86)	56.17 (.93)
Caregiver male (female)	3.64	4.99
Caregiver full-time employment (no full-time employment)	39.28	42.46
Caregiver married (not married)	34.11	29.00
Caregiver less than high school education (high school or more)	27.41	31.14
Annual family income 40K or under (over 40K)	78.36	82.77
Caregiver kinship relationship with child (non-kinship relationship)	82.06	77.35
Guardianship placement (adoption)***	42.24	55.34
APAL intervention receipt***	55.07	2.19

Notes: Reference groups for categorical variables are in parentheses

*p<.05; ***p<.001 chi-square tests of independence for categorical variables and bivariate regression models with the variable as the outcome for continuous variables

SRD Results

Tables 3.2 and 3.3 below display the results of thirteen SRD models (six and seven models for BPI score and caregiver commitment score, respectively). The ATEC assuming a sharp discontinuity across all cutoffs, analogous to an ITT effect, is indicated by the coefficient for APAL in the first row of the tables.

BPI score. The SRD regression models with BPI score as the outcome indicated generally consistent estimates for the ATEC. Specifically, five SRD models (i.e., Models 1-3 and 5-6), showed an ATEC ranging from -2.13 to -2.44 ($p < .05$ for all five). None of the SRD models shown in Table 2 explained a significant amount of variance in the BPI scores, because all adjusted R^2's were $\leq .03$. However, incremental R^2 indicated that adding the variable for guardianship (with adoption as the reference category) slightly improved model fit. Thus, Model 3 was selected as the best fitting model, and the ITT effect for the APAL intervention was -2.13 ($p = .007$), a small effect size ($d = -.29$) according to Cohen's rules of thumb for interpreting effect sizes (Cohen, 1988).

Model 3 also showed that guardianship was associated with an increase in BPI scores of approximately 1.95 points ($p = .013$). The *F*-statistic for Model 3 was statistically significant ($F[3,423] = 5.36$; $p = .001$), and a Breusch-Pagan test indicated no evidence of heteroskedasticity ($p > .05$). Further, Variance Inflation Factors (VIF) for were all 1.03 or below, indicating no problem of multicollinearity. Cook's distance, calculated for all observations, indicated no problem of influential outliers. Figure 3.5 displays a line graph of predicted values for Model 3 and a scatterplot of child age and BPI scores. The discontinuities at ages 13, 14, 16, and 17 are evident in the line graph, visually confirming the result displayed in Table 1 that APAL eligibility was associated with less child behavior problems.

Table 3.2. SRD Hierarchical Regression Analyses: Estimated Coefficient (SE) Using BPI Score as the Outcome

Variable	Model 1 (N=437)	Model 2 (N=428)	Model 3 (N=431)	Model 4 (N=437)	Model 5 (N=437)	Model 6 (N=437)
APAL (no APAL)	-2.36* (.77)	-2.27** (.78)	-2.13** (.79)	-4.91 (6.87)	-2.44** (.80)	-2.44** (.80)
Child's age in years	-.08 (.22)	-.08 (.23)	-.13 (.22)	-.15 (.29)	2.09 (4.89)	.80 (59.95)
Total number of children in the home		-.37 (.24)				
Guardianship (adoption)			1.95* (.78)			
Interaction: APAL X child's age				.17 (.46)		
Child's age^2					-.07 (.16)	.01 (4.01)
Child's age^3						-.00 (.09)
Intercept	12.65*** (3.48)	13.69*** (3.56)	12.23*** (3.47)	13.61** (4.43)	-3.55 (36.31)	-2.86 (296.74)
F-statistic	4.72**	4.35**	5.36**	3.21*	3.17*	2.38
Adjusted R^2	.02	.03	.03	.02	.02	.02
Incremental R^2		.01	.01	.00	.00	.00

Notes: Reference groups are in parentheses

[†]$p<.10$; *$p<.05$; $p<.01$; ***$p<.001$

Incremental R^2 is the improvement in R^2 as compared to Model 1

Sample sizes differ across models due to some cases missing data on variables
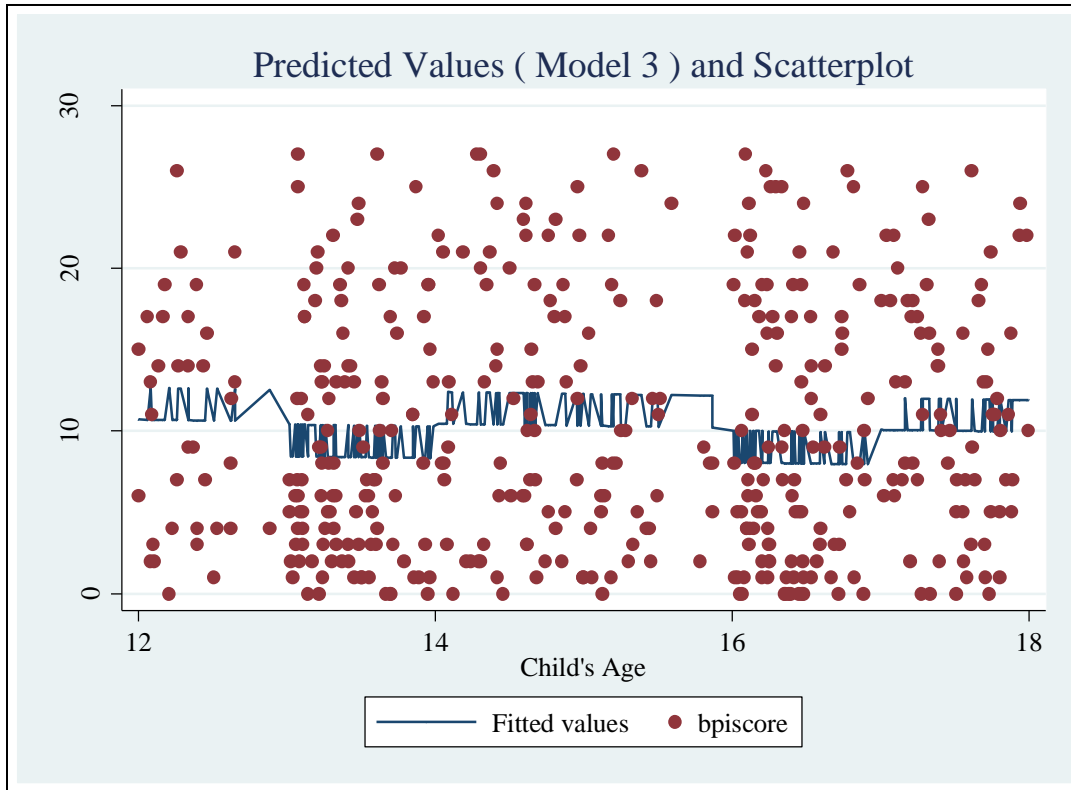
Figure 3.5. Predicted Values for Model 3 and Scatterplot

Caregiver Commitment. As shown in Table 3.3, the results of SRD models with caregiver commitment as the outcome provide mixed evidence regarding the ITT effect for the APAL intervention. Across regression models, all of the coefficients for APAL were in the positive direction, and those that were statistically significant (Models 7, 11, and 12) ranged from .83 to 1.06. In addition, Models 8, 9, and 13 showed a statistical trend for a positive relationship between APAL eligibility and caregiver commitment. However, the best fitting model (Model 13), only showed a statistical trend for APAL ($\beta = .82$; $p = .069$), a small effect according to Cohen's rules of thumb ($d = .21$).

In regard to regression diagnostics for Model 13, Cook's distance estimated for all observations indicated no problem of influential outliers. However, a Breusch-Pagan test suggested a problem of harmful heteroskedasticity ($p < .05$). Further, visual inspection of a

scatterplot (see Figure 3.6 below) showed that the variance in caregiver commitment scores increased with child age. Thus, Model 13 was re-estimated with robust standard errors (using the Huber-White estimator; White, 1980) and without sampling weights, and the coefficient for APAL was no longer statistically significant ($\beta = .49$; $SE = .41$; $p = .234$).

Regression diagnostics for Model 13 also indicated that VIF values for guardianship, number of children in the home, and APAL eligibility were acceptable (≤ 1.12), but the VIF values for child age and the quadratic term for child age were very high (466.89 and 468.15, respectively). This was not surprising given that one term was derived by squaring the other, but did raise a concern about multicollinearity, which may cause unreliable estimates for coefficient standard errors (Guo & Hussey, 2004). Thus, the child age variable was centered to eliminate the problem with multicollinearity and all models were re-estimated (results not shown due to space limitations), and these results were not significantly different from those presented here.

The *F*-statistic for Model 13 was statistically significant ($F[5,405] = 5.34$; $p = .000$), and both child age ($p = .008$) and the quadratic term for child age ($p = .009$) were also statistically significant. Model 13 indicated that guardianship (as compared to adoption) was associated with about a .96 point reduction in caregiver commitment scale scores ($p = .034$). Also, each additional child in the home was associated with a .29 increase in caregiver commitment scores ($p = .027$). The results of Model 13 showed that the relationship between the child age and caregiver commitment was quadratic, and that caregiver commitment decreased to a certain point as children got older, but at about the age of 16, caregiver commitment started to increase with child age. The quadratic functional form between child age and caregiver commitment is shown in Figure 3.6, which displays a line graph of

predicted values for Model 13 superimposed on a scatterplot of child age and caregiver

commitment scores. As shown in the figure, discontinuities in the caregiver commitment

outcome at ages 13, 14, 16, and 17 are not evident, congruent with the finding of no

statistically significant ATEC for the APAL intervention at the $p < .05$ level.

Table 3.3. SRD Hierarchical Regression Analyses: Estimated Coefficient (SE) Using
Caregiver Commitment as the Outcome

Variable	Model 7 (N=429)	Model 8 (N=421)	Model 9 (N=423)	Model 10 (N=429)	Model 11 (N=429)	Model 12 (N=429)	Model 13 (N=415)
APAL (non-APAL)	.83* (.41)	.70† (.42)	.71† (.42)	3.92 (3.41)	1.06* (.42)	1.06* (.42)	.82† (.45)
Child's age in years	-.13* (.10)	-.14 (.11)	-.11 (.11)	-.06 (.14)	-6.67** (2.44)	-3.28 (29.20)	-6.81** (2.53)
Total number of children in the home		.26* (.13)					.29* (.13)
Guardianship (adoption)			-1.01* (.42)				-.96* (.41)
Interaction: APAL X child's age				-.21 (.23)			
Child's age^2					.22** (.08)	-.01 (1.96)	.22** (.08)
Child's age^3						.01 (.04)	
Intercept	31.65** (1.72)	31.05*** (1.79)	31.83*** (1.74)	30.48*** (2.19)	80.27*** (17.98)	63.50 (143.92)	80.84*** (18.59)
F-statistic	3.52*	3.99**	4.91**	3.02*	4.71**	3.53**	5.34***
Adjusted R^2	.01	.02	.03	.01	.03	.03	.05
Incremental R^2		.01	.02	.00	.02	.01	.04

Notes: Reference groups are in parentheses

†p<.10; *p<.05; p<.01; ***p<.001

Incremental R^2 is the improvement in R^2 as compared to Model 1
Sample sizes differ slightly across models due to some cases missing data on variables
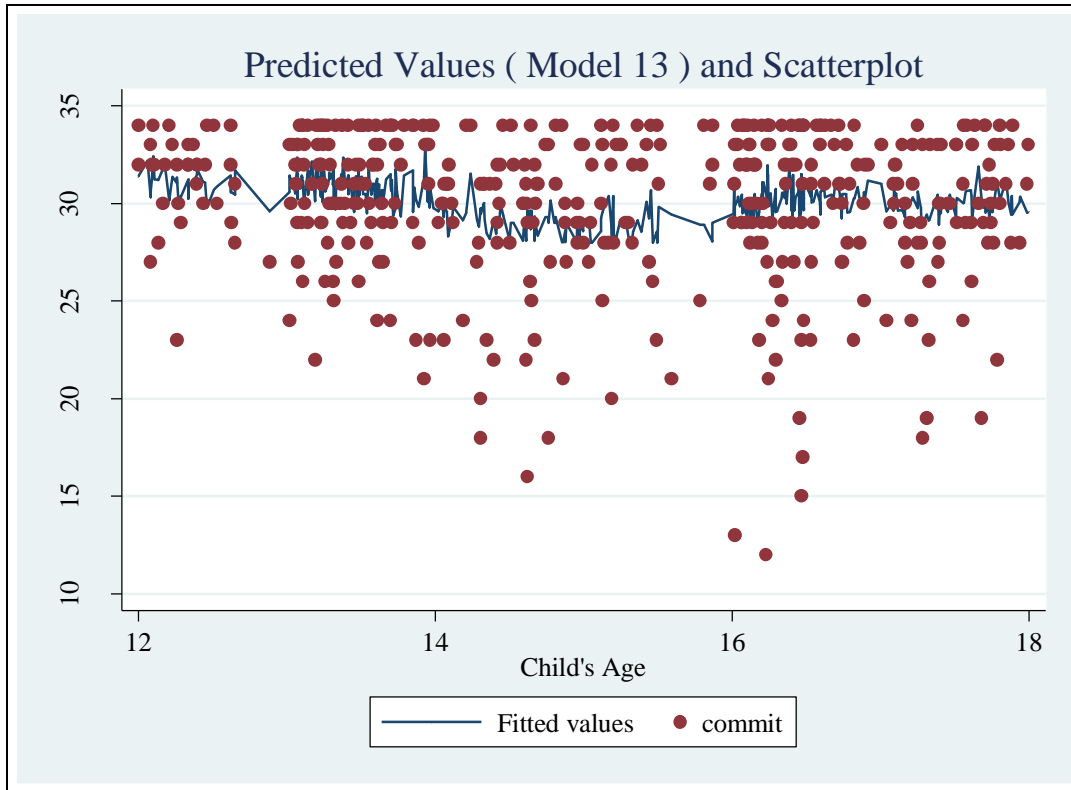
Figure 3.6. Predicted Values for Model 13 and Scatterplot

FRD Results

Table 3.4 displays the ATEC for compliers for both outcomes assuming a fuzzy discontinuity across the four cutoff points. Specifically, the ATEC for compliers was obtained by estimating the 2SLS equations shown in Figure 3.4 above. The ATECs for compliers may also be obtained by dividing the ATECs derived from SRD models by the discontinuity in APAL receipt across the four cutoff points (i.e., .5288). The second-stage FRD models were selected based on the best fitting models found in SRD above, namely, Model 3 for BPI score and Model 13 for caregiver commitment. For BPI score, the estimated ATEC for compliers was -4.03 ($p = .007$), a moderate effect size ($d = -.55$), indicating that receipt of the APAL intervention was associated with about a four-point decrease in BPI scores. In regard to caregiver commitment score, there was a statistical trend suggesting a

slightly positive relationship between APAL receipt and caregiver commitment for

compliers, a small effect size ($d = .41$), but this relationship was not statistically significant at

the $p < .05$ level.

Table 3.4. ATEC for Compliers Based on FRD Models

Outcome Variable	N	Estimated Regression Coefficient for Probability of APAL receipt (SE)	p-value
BPI score	431	-4.03 (1.49)	.007
Caregiver Commitment	415	1.54 (.85)	.069

Notes: Sample sizes differ slightly across models due to some cases missing data on variables

Discussion

The results of this study support the first of the two research hypotheses. Specifically,

RD models consistently indicated a significant negative relationship between the APAL

intervention and BPI scores. Based on the best-fitting model for child behavior problems

(Model 3), the impact of APAL eligibility on BPI scores, analogous to an ITT effect, was a

little over a two-point decrease, and for compliers, the impact of APAL intervention receipt

on BPI scores was about a four-point decrease. In contrast, no relationship was found

between child age and BPI scores, which contradicts previous studies that generally show

older children experience more behavior problems in adoption placements (Averett,

Nalavany, & Ryan, 2009; Barth & Miller, 2000; Groza & Ryan, 2002). However, the age

range of youth in this study was restricted to adolescents only, and it may be that the positive

relationship between child age and behavior problems is only found when examining youth

behavior across a wider developmental range.

In regard to the second research hypothesis, the results were inconclusive. No

statistically significant relationship was found between APAL and caregiver commitment at

the $p < .05$ level, but a statistical trend for the best-fitting model suggested a positive relationship between the two variables. On the other hand, when the selected model was re-estimated with robust standard errors and no sampling weights to account for heteroskedasticity, the statistical trend disappeared. In comparison, Liao and Testa (2014), found a positive relationship between APAL receipt and caregiver commitment using an instrumental variables approach. However, Liao and Testa also used a slightly different caregiver commitment variable than the one used here, controlled for different covariates obtained from administrative data, and used a one-directional hypothesis based on a priori theory about the direction of the relationship between APAL intervention and caregiver commitment.

Also in regard to caregiver commitment, results of this study showed a non-linear relationship between child age and caregiver commitment. Specifically, caregiver commitment decreased with child age until about age 16, and then started to increase with child age. This finding may reflect a dynamic of caregiver commitment after adoption or guardianship specifically, or relationship difficulties that all caregivers of adolescents generally encounter as youth begin to assert their independence as teenagers (Laursen & Collins, 2009).

One statistically significant covariate, guardianship placement (as compared to adoption), was included in both of the models selected as having the best fit for the two outcomes of interest. Guardianship was associated with slightly poorer outcomes on both proximal measures as compared to adoption. This finding is consistent with previous literature that shows guardianship families face different challenges on average than adoptive families (Leathers, Falconnier, & Spielfogel, 2010). For example, guardianship caretakers are

more likely to be single parents and racial minorities than adoptive caretakers, and guardianship youth tend to be older and also minority race as compared to adopted youth (Akin, 2011; Howard, Smith, Zosky, & Woodman, 2006; Testa, 2004). Further, guardianship is less legally binding than adoption, and is a preferred permanency option for caretakers who want guardianship youth to maintain some degree of relationship with their biological parents (Testa, 2004). Thus, it is unknown whether the slightly negative impacts of guardianship on proximal outcomes found in this study reflect protective effects for adoption, or selection effects such as adoptive caretakers having greater commitment to children prior to placement, less troubled youth placed in their homes, or better life conditions on average as compared to guardianship caretakers (Howard et al., 2006; Koh & Testa, 2011; Testa, 2005).

One other covariate, the total number of children in the home, was found to be positively related to caregiver commitment. Thus, caregivers may feel more of a long-term obligation to provide care for an adopted or guardianship child if he or she is part of a larger family system. However, other studies have found mixed results in regard to the relationship between number of children in the home and post-adoption or guardianship outcomes (Erich & Leung, 2002; McDonald et al., 2001; Ward, 2002). For example, McDonald and colleagues (2001) found that more adopted children in the home was associated with better family adjustment, but more total children in the home was associated with worse family adjustment.

The results of SRD estimation in this study, which provided an estimate of expected benefits to program participants based on eligibility alone, were somewhat encouraging for child welfare administrators and policymakers, who may need to justify the costs of post-

permanency program development and implementation based on an ITT effect, without regard to participants' compliance with the intervention. Put simply, the statistically significant ITT effect for APAL on child behavior problems suggests that a simple, time-limited post-permanency intervention may have positive impacts on average post-permanency outcomes despite the fact that a large proportion of the intervention-eligible population does not actually receive the program.

Both outcomes analyzed here, child behavior problems and caregiver commitment, have been identified in previous research as indicators of child and family post-adoption or guardianship adjustment and as proximal outcomes to post-permanency discontinuity (Averett et al., 2009; Erich & Leung, 2002; Goldman & Ryan, 2011; Groza & Ryan, 2002; Nalavany et al., 2008; Ward, 2012). The finding that brief contact with adoption or guardianship caregivers had a positive impact on parental reports of child behavior suggests that post-permanency families may benefit from even brief interventions integrated into typical child welfare services. Future interventions should expand the APAL model to include services provided by caseworkers in the home, such as individual or family counseling or parenting education, as well as monitoring of post-permanency families for longer periods of time. Indeed, previous studies have suggested that post-permanency families often need support for years after legal finalization of adoptions or guardianships, particularly as youth get older and move through key developmental milestones in adolescence (Berry et al., 2007; Dhami, Mandel, & Sothmann, 2007; Groze, 1996; Zosky et al., 2005).

There are several limitations to this study. First, although RD is considered to have high internal validity among observational studies, the design is quasi-experimental, and

requires more assumptions than a randomized trial for identifying a causal effect. For example, the ATEC estimated through FRD applies to compliers only. In addition, one important assumption of RD is that the functional relationship between the assignment variable and the outcome is properly specified (Lee & Lemieux, 2010). Although several parametric models of increasing flexibility were estimated for each outcome to test this assumption, it is possible that the functional form was not properly specified. Non-parametric estimation is one method to test the sensitivity of RD results to the specified functional form that may be useful in future studies (see Imbens & Kalyanaraman, 2009; Lee & Lemieux, 2010; van der Klaauw, 2008).

Another study limitation is that, although the sample size was adequate for estimating regression models, observations were sparse near the cutoffs of 13 and 17 years old, because there were fewer youth ages 12 and 17 years old included in the sample (i.e., $ns = 35$ and 73, respectively). In addition, R^2's were low across all regression models, indicating that the selected covariates explained very little variance in the outcomes of interest. Finally, external validity is limited because the sample was derived from adoption or guardianship youth and their caregivers in the Chicago area in 2008, and caregivers agreed to complete the survey. Thus, the results may not generalize to the larger U.S. population of adopted and guardianship youth.

Conclusion

A key strength of this RD study is that "local randomization" at cutoff values is plausible, because youth who differ in age by only a few days or weeks are unlikely to systematically differ according to other characteristics that may confound the relationship between child age and child behavior problems or caregiver commitment. It is difficult to

imagine a confounding variable that could cause the discontinuities in both the treatment and outcome variables across all four of the selected cutoff points. Thus, the design has high internal validity for estimating two average treatment effects for the APAL intervention, one for assignment to treatment and one for receipt of treatment. This study provides a valuable contribution to the child welfare literature because few previous studies have attempted to understand the unique needs of post-adoption or guardianship families, and even fewer have evaluated programs designed specifically to address those needs.

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SUMMARY

There are several notable findings in this dissertation. First, although the majority of adopted and guardianship youth do not reenter foster care after legal finalization, evidence indicates that post-permanency adjustment is often difficult for children and families, reflected in the large number of caregivers who report problems and service needs. Further, research suggests that the risk for discontinuity is higher for certain at-risk groups. In particular older children, children who display behavior problems, and children who have experienced sexual or physical abuse are at the greatest risk for post-permanency difficulties. Post-adoption or guardianship adjustment is also better when caregivers have realistic expectations for children's behavior, are more prepared for adoption or guardianship, and report higher levels of family cohesion and functioning. Finally, post-finalization support services provided by child welfare agencies can have positive impacts on youth and families, particularly when services are intended to help parents better manage child behaviors.

This dissertation also provides evidence that caregiver commitment is a useful proximal measure to discontinuity, and that the construct may help researchers and practitioners better assess post-adoption and guardianship adjustment before families reach a point of crisis. This study provides a foundation for future scale development, in that the caregiver commitment measure could be further developed with more potential items in a larger and more diverse population. Study results also show that parents who report more behavior problems of adopted or guardianship children are also likely to report being less committed to permanency.

In regard to the APAL program, this dissertation suggests that the intervention is associated with less child behavior problems as reported by caretakers. The impact of the intervention is clinically significant for compliers, as it is associated with about a four-point decrease in behavior scores on the BPI. The relationship between APAL and caregiver commitment is less clear because a statistical trend suggests a positive relationship, but when an adjustment is made for a violation of regression assumptions, this relationship disappears. Therefore, results of the APAL evaluation show limited impacts for the intervention, but are promising, and suggest that even a brief, non-manualized intervention may have a significant influence on children and families after finalization of an adoption or guardianship.

This dissertation provides a significant contribution to the literature because few studies have rigorously examined risk and protective factors for discontinuity or outcomes proximal to discontinuity after legal finalization (Festinger, 2002; Selwyn et al., 2014; Smith, et al., 2006; Treseliotis, 2002). This is likely because data on post-permanency families is difficult to obtain, and because researchers have only recently started to consider that adoptive and guardianship caretakers may need more support than financial subsidies to provide long-term stability for children. In addition, child welfare agencies have only in the past twenty years begun to feel pressure to meet federal incentives for increasing permanency rates (Festinger, 2002; Smith et al., 2006), leading to an increase in the proportion of adoptees and guardianship children with documented "special needs" (i.e., foster youth, older children, and youth with mental, physical, or developmental problems; Berry, Propp, & Martens, 2007).

As noted, above, previous post-permanency studies have been hampered by poor designs and sampling, as well as inadequate attention to selection bias (Dhami, Mandel, &

Sothmann, 2007; Groze, 1996; Smith et al., 2006). This dissertation provides a contribution

to the literature by implementing multivariate regression to account for confounding due to

child and caregiver characteristics, and examining outcomes for a post-permanency

intervention program using standardized measures. Also RD is used, a design with high

internal validity among observational approaches, to evaluate a promising intervention

(Shadish, Cook, & Campbell, 2002).

Most importantly, this dissertation provides information that is useful to child welfare

administrators, workers, and advocates in working with adoption and guardianship families.

The current state of social work practice is largely based on adoption studies conducted with

families prior to legal finalization, or with small convenience samples (Dhami et al., 2007).

This study not only summarizes findings on risk and protective factors from the peer-

reviewed literature, but also examines post-permanency outcomes for families that

participated in a large survey study with a rigorous sampling strategy. Overall results should

suggest to practitioners which types of adoptive or guardianship families might be most at-

risk for poor post-permanency outcomes, as well as indicate the types of services that would

effective for improving post-finalization adjustment (e.g., more caretaker preparation, in-

home services for child behavior problems as needed).

Overall Limitations

Although this dissertation presents a valuable contribution to the literature, there are a

few notable overall limitations. First, although risk and protective factors for discontinuity

are clearly defined, some are broadly conceptualized and thus, lack specificity. For example,

children's "externalizing behaviors" are defined as a host of different problematic behaviors

that a child may direct toward other people, including aggression, delinquency, hyperactivity,

or defiance (Liu, 2004). However, any one of these externalizing behaviors, or some combination of them, may contribute to higher risk for post-adoption or guardianship problems. Another vague risk factor common in the child welfare literature is children's "special needs." As noted above, this can refer to any one or a combination of older age; minority race; behavior problems; sibling group placement; or mental, physical, or developmental disabilities (Berry, Propp, & Martens, 2007; Groze, 1996). In addition, other risk or protective factors may simply be proxies for other factors that influence post-permanency adjustment. For instance, an older child's age is likely a proxy for other variables, such as a child's commitment to the relationship, independence, or cognitive abilities. It seems unlikely that age alone creates risk for discontinuity or other problems, but rather that older age is associated with other factors that mediate risk.

Second, this dissertation makes use of rigorous analytic methods to develop a scale and analyze post-permanency outcomes, but also uses data from a post-permanency survey, which requires design and statistical adjustments to account for potential confounding variables. Thus, it is possible that some confounding variables were not included in statistical models, which may lead to biased results. In addition, although the overall size of the survey sample is fairly large, analyses performed with individual subsamples only (i.e., either Rounds 1 or 2) are based on a more modest sample size.

Finally, the external validity of dissertation findings using the post-permanency survey is limited. The survey is representative of the adoption and guardianship population in Illinois, particularly in Cook Co during a particular period of time. Because Illinois has a unique history of child welfare intervention, results may not apply to the population of adopted and guardianship children in the rest of the United State

Directions for Future Research

This dissertation provides evidence that the predominant focus of adoption researchers and advocates on attachment processes in infancy and young childhood, as well as attachment-related interventions (Barth & Miller, 2000), may not be the best way to consider or address the problems faced by children after legal adoption or guardianship. Rather, it seems that research should be focused on theories and processes that relate to older children who come to adoption or guardianship with histories of trauma and more intensive involvement with the child welfare system (e.g., more time in foster care, more placement changes, or more restrictive modes of substitute care). Indeed, many scholars have advocated for the development of a "trauma-informed child welfare system," in which the effects of multiple traumas experienced by many child-welfare involved children are appropriately assessed, treated, and considered in all phases of intervention and judicial review (Ko et al., 2008). In addition, child welfare scholars need to consider whether the dearth of post-permanency research and intervention development for older adopted and guardianship children with behavior problems reflects a bias that these children are beyond help.

This dissertation represents an important step in understanding risk and protective factors for discontinuity and poor post-permanency adjustment, but more rigorous studies are needed. Specifically, clearly defined risk and protective factors must be evaluated in longitudinal research, and studies should also rigorously account for potential selection bias and use longer study windows, such as five years or more. Further, studies should go beyond simply identifying the correlates of post-permanency problems by positing and testing conceptual models; structural equation modeling may be particularly helpful to test and compare the fit of different hypothesized models.

A conceptual framework, or paradigm, may also be helpful to organize and advance post-permanency research efforts (White & Wu, 2014), as well as better understand and explain discontinuity. Child welfare scholars are beginning to recognize that new theoretical and conceptual models are needed to explain complex relationships between child maltreatment; child development; foster, adoption, or guardianship placement; and social conditions that change over time (Foster, Hagan, & Brooks-Gunn, 2008; Roberson, 2006; Ryan, Garnier, Zyphur, Zhai, 2006; Testa, 2013; White & Wu, 2014). Existing theories and conceptual models are often insufficient for understanding post-permanency problems because these problems are influenced by many related personal, family, community, and time factors (Berzin, 2010; Festinger, 2002; Testa, 2013), and because the effects of child abuse and neglect may be detected into adulthood (Avery, 2009; Berzin, 2010; Courtney, 2010; Dodge, Malone, & Greenberg, 2008).

The life course perspective, or paradigm, provides concepts and theories that are useful for understanding the complicated relationships between maltreatment, trauma, and foster care for adoption and guardianship children (Baltes, 1987; Elder, 1998; White & Wu, 2014). As one example, theories of accumulated disadvantage propose that early life disadvantages, such as maltreatment, violence, and poverty increase the risk for stressors, such as teenage pregnancy or high school dropout, that lead to further disadvantages later in the life course (Ferraro, Shippee, & Schafer, 2009; Pearlin, Schieman, Fazio, & Meersman, 2005; White & Wu, 2014). Thus, accumulated disadvantage may be useful for explaining the experiences of adoption and guardianship children who often face early disadvantages such as abuse or neglect, poverty, and foster care placement (Bruskas, 2008, D'Andrade, 2005).

It is important to remember that just because child welfare agencies meet or exceed permanency goals defined by federal or state policies, former foster children may not necessarily thrive. Child welfare caseworkers, administrators, researchers, and advocates need to look beyond immediate policy goals for adoption or guardianship placements and examine how former foster children fare in regard to long-term permanency and physical, mental, and educational well-being. Thus, more research is needed to understand the risks and opportunities that impact post-adoption and guardianship adjustment; to develop effective interventions to prevent discontinuity; and when not possible, to prevent the deleterious outcomes of discontinuity.

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