

ADOPTees AND BEHAVIOR PROBLEMS: A META-ANALYSIS

by

JONATHAN J. SWINTON

B.F.A, Utah State University, 2005

M.S., University of Nebraska, 2007

MedFT, University of Nebraska Medical Center, 2007

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

School of Family Studies and Human Services
College of Human Ecology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2011

ABSTRACT

Adoption trends have shifted in the past two decades and as a result, could impact established assumptions about behavior problems among adopted children. A comprehensive meta-analysis was published in 2005 attempting to come to more definitive conclusions regarding adoption behavior and moderators of adoption behavior. However, the study used a sample from over a dozen countries over a 44 year span. This study is a meta-analysis that has replicated many of the questions investigated by the previous analysis with a much more recent 15 year sample of adoptees placed only within the United States. The results show that combined international and domestic adoptee samples, as well as separate international and domestic adoptee samples are more likely to have total, externalizing, and internalizing behavior problems than their non-adopted counterparts. In addition, age at time of assessment, gender of adoptees, and length of time spent with adoptive family may moderate some of the behavior problems experienced by adoptees. Pre-adoptive adversity, age at time of assessment, and study quality were not shown to have moderating influence on behavior of adoptees.

ADOPTees AND BEHAVIOR PROBLEMS: A META-ANALYSIS

by

JONATHAN J. SWINTON

B.F.A, Utah State University, 2005

M.S., University of Nebraska, 2007

MedFT, University of Nebraska Medical Center, 2007

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

School of Family Studies and Human Services
College of Human Ecology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2011

Approved by:

Co-Major Professor
Jared Anderson

Approved by:

Co-Major Professor
Sandra Stith

COPYRIGHT

JONATHAN J. SWINTON

2011

ABSTRACT

Adoption trends have shifted in the past two decades and as a result, could impact established assumptions about behavior problems among adopted children. A comprehensive meta-analysis was published in 2005 attempting to come to more definitive conclusions regarding adoption behavior and moderators of adoption behavior. However, the study used a sample from over a dozen countries over a 44 year span. This study is a meta-analysis that has replicated many of the questions investigated by the previous analysis with a much more recent 15 year sample of adoptees placed only within the United States. The results show that combined international and domestic adoptee samples, as well as separate international and domestic adoptee samples are more likely to have total, externalizing, and internalizing behavior problems than their non-adopted counterparts. In addition, age at time of assessment, gender of adoptees, and length of time spent with adoptive family may moderate some of the behavior problems experienced by adoptees. Pre-adoptive adversity, age at time of assessment, and study quality were not shown to have moderating influence on behavior of adoptees.

TABLE OF CONTENTS

LIST OF TABLES	viii
ACKNOWLEDGMENTS	ix
INTRODUCTION	1
REVIEW OF LITERATURE	3
Adoption in the United States	3
Domestic Adoption	3
International Adoption	4
Adoptees and Potential Behavior Problems.....	5
Potential Moderating Factors	7
Behavior Problem Discrepancies	9
Contextual Considerations for Adoptees Potential Behavior Problems	10
Clinical Over-representation	10
Deficit View of Adoption	10
Available Resources for Adoptees and Adoptive Families	12
United States Adoption and Social Welfare Reform	12
Meta-analysis by Juffer and van IJzendoorn (2005).....	13
Justification for New Meta-analysis	15
Purpose of Study	17
METHOD	19
Study Inclusion Criteria	19
Study Exclusion Criteria	20
Search Strategies	20
Data Extraction and Coding.....	23
Descriptive Data.....	24
Study Quality	24
Case Moderator Data	25
Effect Size Data	25
Statistical Analysis Procedures	26
RESULTS	27
Adoptees Behavior (Domestic and International Combined).....	28
International Adoptees Behavior	28
Domestic Adoptees Behavior	28
International Adoptees Compared to Domestic Adoptees.....	30
Moderating Factors	30
Adoptees (International and Domestic Combined).....	30
International Adoptees	31

Domestic Adoptees	31
Study Quality	32
DISCUSSION.....	37
Adoptees Behavior.....	37
Moderators	40
Limitations	45
Future Directions	46
Conclusions.....	48
REFERENCES	49
APPENDIX A: LETTER TO AUTHORS.....	62
APPENDIX B: EXTRACTION AND CODING MANUAL.....	63
Extraction and Coding Manual	63
Coding/Extraction Sheet	80

LIST OF TABLES

Table 1: Case-Control Studies Included in Analysis	22
Table 2: Meta-analytic Results Comparing Behavior Problems.....	29
Table 3: Contrast Results Comparing International Adoptees to Domestic Adoptees.....	29
Table 4: Meta-analytic Contrast Moderator Results.....	33
Table 5: Total Moderator Meta-analytic Results	34
Table 6: Externalizing Moderator Meta-analytic Results.....	35
Table 7: Internalizing Moderator Meta-analytic Results	36

ACKNOWLEDGEMENTS

I first want to thank my family. My wonderful wife, Annie, has been a stalwart companion. Her enduring encouragement, love, and support have provided me the strength I needed to complete this project. Words cannot express my appreciation to her. My son, Spencer, is the ultimate inspiration for this project. I thank him for becoming part of our family during this process and for motivating my excitement to help adopted children across the country with this research. My parents Jeff and Heidi need to be recognized for the love and countless sacrifices they made on my behalf that provided me with the schooling and assistance I needed to succeed. My four brothers, Cameron, Christian, Daniel, and Ian, have always been my dearest friends and greatest advocates.

I express special thanks to my dissertation committee, Dr. Jared Anderson, Dr. Sandra Stith, Dr. Candyce Russel, Dr. Fred Bradley, and Dr. Mary Cain, for being patient and willing to help me in each step of the research process. In particular, Jared has been a much-appreciated confidant and mentor, and Sandi has been an excellent motivator.

I would like to thank my other professors Kansas State University, the University of Nebraska, and Utah State University, especially Dr. Joyce Baptist, Dr. Anthony Jurich, Dr. Dave Robinson and Dr. Richard Bischoff and Craig Law. To the Waterford School, Nancy and Dustin Heuston, and James Harris for teaching me how to think, analyze, and succeed in academic settings. To Tillman Crane, my art mentor, you helped me see that through a new lens, I truly can succeed. I still see the world differently because of you. I would like to thank my fellow classmates, Jeremy, Sarah, and Stephanie. They have been trusting, loyal friends. To Donald Lundwall, thank you for inspiring me. To Lance Allred,

as Bruce would say, thanks for “fightin’ for” me. To Barbara Lockhart, I have always appreciated that you understood the depth and complexity of this project.

Most importantly, I want to thank my Father in Heaven and Jesus Christ. They have been the light that has guided me through this whole experience. They have blessed me with the patience, knowledge, inspiration, and capacity to complete this project.

Introduction

Many individuals and couples across the United States (US) choose to expand their family by adopting children from domestic and international sources (US Department of the State, 2011). This has become an increasingly common trend over the past 50 years (US Department of Health and Human Services, 2004). Similarly, many children throughout the US and the world are in need of healthy families within which to be raised.

Common adoption policies and procedures in the US guide adoptive parents through training so they can be prepared for the unique experience of raising an adoptive child (Fisher, 2003). One of the most common issues addressed in training and popular literature is the potential behavior problems their soon-to-be adopted children may face as a result of being adopted (MacLeod & Macrae, 2007). Much of the empirical literature on behavior issues and adoptees suggests that adoptees are at a greater risk of experiencing behavior problems compared to their non-adopted counterparts (Baden, 2007; Friedlander, 1999; Hoksbergen & Laak, 2007; Hoshmand, Gere, & Wong, 2006; McGin, 2007; Miller, Fan, Christensen, Grotevant, & van Dulman, 2000; Mohanty & Newhill, 2005; Verhulst, 2008). However, some empirical literature exists which suggests that adoptees may not be at an increased risk for behavior problems (Freundlich, 2007; McGinn, 2007). Therefore, additional research is warranted to determine whether the link between adoption and behavioral problems remains in a more recent, US based sample.

An effective way of reaching a more definitive conclusion regarding the prevalence of behavior problems in adoptees is to conduct a meta-analysis. In 2005, a meta-analysis was published in the *Journal of the American Medical Association*

addressing this issue (Juffer & van IJzendoorn, 2005). This study concluded that adoptees (international and domestic) are at a greater risk of experiencing behavior problems than their non-adopted counterparts, though the effect sizes were small. In looking at moderator variables with international adoptees they found that experiencing pre-adoptive adversity, being under age 12 at the time of the study, and living with adoptive families for less time significantly increased the magnitude of the effect between adoption and behavior problems.

Although the Juffer and van IJzendoorn study is the most comprehensive study to date linking behavioral problems and adoption, the results might not be directly applicable to the current adoption context in the US. For example, the Juffer and van IJzendoorn study used samples from countries all over the world, and they included studies that took place over a 44-year period. Literature has shown that adoption trends and policies saw dramatic changes through the mid 1990s (Eposito & Biafora, 2007). Hence, inclusion of data over a 44-year period may not represent reality for current adoptees. In addition, adoptions that take place in countries other than the US may face different norms in adoption policies and procedures, and different social norms associated with adoption (MacLeod, 2006; National Adoption Information Clearinghouse, 2006). This also challenges the validity of applying worldwide data to adoptions in the US. Given these concerns, an investigation to see if the conclusions reached by Juffer and van IJzendoorn do indeed hold true for more recent, US-only samples is merited.

Therefore, the current study replicated and updated the work of Juffer and van IJzendoorn (2005) with a US-only sample and included studies only from the past 15 years. In addition, the current study built on the work of Juffer and van IJzendoorn by

investigating the moderators potentially associated with a greater risk for behavior problems among international and domestic adoptees (instead of only international adoptee samples) including: pre-adoption adversity, gender, age, age at adoptive placement, and length of time with adoptive family.

Review of Literature

Adoption in the United States

Adoption has been a common practice in the United States (US) for the past century with over 6 million adoptees currently living in the US (Pertman, 2000). Historical trends indicate that adoption increased in prevalence from the 1950s until the 1970s, reaching an average of 175,000 adoptions per year in the US in the early 1970s (US Department of Health and Human Services, 2004). That number steadily declined into the 1990s and has remained fairly stable since then, with the current average number of adoptions that take place annually at approximately 125,000 (Biafora & Esposito, 2007).

Domestic adoption. Domestic adoptions account for the majority of adoptions (85%) that take place in the US (U.S. Department of the State, 2011). Domestic adoptions include public adoptions (i.e. foster care system adoptions) and private adoptions (i.e. children placed through adoption agencies or independent adoptions where birth parents place children directly with adoptive parents). However, the decline in the number of domestic adoptions in the US accounts for most of the decline in total adoption numbers since the 1970s. It has been suggested that the decline may be the result of increased use of contraceptives, legalization of abortions, and changing attitudes about single parenting (The Evan B. Donaldson Adoption Institute, 2011).

Though there has been a decline in domestic adoptions, adoption remains a common practice across the country. Public adoptions in particular have increased. Public adoptions accounted for only 18% of adoptions in the US prior to the mid 1990s, but in recent years they have accounted for approximately 40% of the adoptions in the US (US Department of Health and Human Services, 2011; Biafora & Eposito, 2007). This percentage shift can be accounted for in part by a decrease in domestic private adoptions, but also an increase in the number of public adoptions. For example, the number of public adoptions increased from 37,000 in 1998 to 57,000 by 2009 (US Department of Health and Human Services, 2011).

International adoption. International adoption has become a very common practice worldwide, though the majority of the receiving countries are in the western hemisphere. The need for adoption is great across the globe with an estimated 100 million children in need of permanent parents (Child Welfare League, 2003). Over 40,000 adoptions take place each year crossing country lines (US Department of the State, 2005). Slightly more than half of the children adopted internationally are adopted by families in the US. The others are adopted into one of over 100 other countries (Selman, 2002). The majority of these adoptions are of young children (less than 3 years of age); however adoptions do occur for children from infancy all the way through late adolescence (Biafora & Eposito, 2007).

Nearly a quarter of a million children have been adopted by families in the US from other countries between 1995 and 2005 (Miller, 2005). In the early 1990s there were only 7,000 international adoptions in to the US annually, less than a third the amount that were adopted in 2005 (Schooler & Atwood, 2008). This was an increasing trend through

2005 largely because China, South Korea, Russia, and Guatemala increased the number of children they were willing to place internationally (Selman, 2009). However, after 2005 the number of children adopted internationally began to decline due primarily to reductions in adoption placements being processed by China, South Korea, Russia, and Guatemala (Selman, 2009). Together, those four countries accounted for nearly 18,000 adoptions in 2005, however, by 2010 the number dropped to under 7,000 adoption placements. These changes reduced the total number of children adopted from other countries into the US from 22,734 in 2005 to 11,058 in 2010, a decline of over 11,000 in five years (US Department of the State, 2011). Adoption trends from countries other than China, South Korea, Russia, and Guatemala have remained fairly stable since the mid 1990s.

There are dozens of countries from which children are regularly adopted into the US. The 10 most common countries from which children were adopted into the US in 2009 include: China (3,001 adopted), Ethiopia (2,277 adopted), Russia (1,586 adopted), South Korea (1,080 adopted), Guatemala (756 adopted), Ukraine (610 adopted), Vietnam (481 adopted), Haiti (330 adopted), India (297 adopted), and Kazakhstan (295 adopted) (U.S. Department of the State, 2011). Adoptions from African and Central American countries are increasing in prevalence in recent years as adoption agencies attempt to meet the demand for children (WHFC, 2009; Biafora & Eposito, 2007, Mohanty & Newhill, 2005).

Adoptees and Potential Behavior Problems

One of the most common issues researched in the adoption literature is the increased risk of behavioral problems evidenced by adopted children (Baden, 2007;

Friedlander, 1999; Hoshmand, Gere, & Wong, 2006; McGinn, 2007; Hoksbergen & Laak, 2007; Miller, Fan, Christensen, Grotevant, & van Dulman, 2000; Mohanty & Newhill, 2005; Verhulst, 2008). Behavior issues may include anything from acting out at home or school, having a diagnosable behavior disorder, maladjustment, or other age-inappropriate behavior. A number of studies suggest that behavioral issues are common among domestically and internationally adopted children and need to be monitored by adoptive parents. For example, studies showed that domestic and international adoptees were more likely to struggle with behavioral issues at some point in their lives than their non-adopted counterparts (Bimmel, Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2003; Miller, et al. Fan, 2000; Verhulst, 2008).

The nature of adoption presents many potential complicating factors that may contribute to the behavioral well being of the child. One of the most commonly suggested struggles is the difficult start many adopted children have in their lives (McGuinn, 2007). Children adopted internationally may have greater risk for behavior problems because of issues such as poor nutrition, neglect and abuse, psychological deprivation, diseases, attachment problems, feeling deserted, and other complicating factors (Verhulst, 2008; Alexander, 2006). These factors may also be present for some domestic adoptees, but are often more common in international adoptions (Barth, Crea, John, Thoburn, & Quinton, 2005). For domestic adoptees however, the severity of the issues may be greater for public domestic adoptees, making behavior problems potentially more common for them than private domestic adoptees (Barth et al., 2005; Leveille & Chamberland, 2010). Some of the other common suggested reasons behavior problems may be more prevalent for all adoptees include poor attachment, lack of biological connections, and difficulty with

identity formation (Bimmel, et al. 2003). Some literature suggests that the biological connection between parents and children that does not exist in adoption threatens the attachment bond of parents and children, potentially negatively impacting child behavior (Hoksbergen & Laak, 2007).

Additional reasons behavior problems may be present are because of marginalization and self-esteem issues. Negative stigmas associated with adoption have been reported by adoptees and adoptive families (Baden, 2007). It has been suggested that multi-ethnic adoptive families may be double marginalized because of negative views of adoption, and negative views of multi-ethnic families (Friedlander, 1999). Similarly, adopted children that attempt to make sense of their cultural identity may struggle with similar behavioral issues as they attempt to make meaning and find their place (Baden, 2007). Research also suggests that adopted children can experience significant self-esteem problems that can contribute to other behavior problems and social maladjustment (Hoshmand, Gere, & Wong, 2006; Mohanty & Newhill, 2005).

Potential moderating factors. Several moderating factors may play a role in the potential behavior risks experienced by adoptees. Pre-adoption adversity, age at time of adoption, length of time with adoptive families, age at time of assessment, and gender, have been suggested as factors that may moderate adoption behavior problems (Baden, 2007; Ernst, 2000; Freundlich, 2007; Hawk & McCall, 2010; Mertz & McCall, 2010; Miller, 2005; Purvis, Cross, & Sunshine, 2007).

Experiencing *pre-adoptive adversity* may predispose adoptees for behavior problems (Mertz & McCall, 2010). The adversity can contribute to attachment injuries, poor nurturing, and post-traumatic ramifications that could impact behavior (Mertz &

McCall, 2010). Adversity and trauma can have a negative impact on anyone, especially vulnerable populations such as children (Purvis, Cross, & Sunshine, 2007).

Literature suggests that children that are adopted at a *younger age* may be less likely to experience behavior problems than those adopted at older ages (Hawk & McCall, 2010). Being adopted at an older age increases the time the child is exposed to multiple preadoptive risk factors such as poor nutrition, neglect and abuse, psychological deprivation, diseases, and feeling deserted (Hawk & McCall, 2010). In addition, secure attachment may be more difficult for children adopted at older ages, potentially impacting future behavior (Purvis, Cross, & Sunshine, 2007).

Adoptees that have *been with their adoptive families for longer periods* may be less likely to have behavior problems (Miller, 2005). The more time a child lives in a stable, adoptive family, the more time that child has to develop a meaningful secure attachment with his/her parent(s) (Hughes, 2007), potentially reducing the prevalence of behavior problems. Hence, it may also be fair to assume that *older children at the time of assessment* could present fewer behavior problems because attachment bonds have had time to build, reducing behavior problems.

Males may be at an increased risk for behavior problems (Ernst, 2000), as they may be more aggressive than females, making behavior problems more likely. It has been suggested that adopted girls have an easier time adjusting socially post-adoption, reducing the behavior problems they may experience compared with males (Stams, Juffer, Rispen, & Hoksbergen, 2000). Though an adequate explanation has not been established, male adoptees have been shown to be more likely to have behavior problems than female adoptees (Verhulst, Althaus, & Versluis-den Bieman, 1990). One potential

explanation could be a mirroring of normal male behavior being worse than female behavior (Gervais, Tremblay, Desmarais-Gervais, & Vitaro, 2000).

These moderating factors could have lasting impacts on the adopted child's behavioral development. Much of the current body of research supports the following general conclusion regarding the potential behavioral problems for children adopted domestically and internationally: adoptees may be prone to having more behavioral problems than their non-adopted counterparts (Baden, 2007; Friedlander, 1999; Hoksbergen & Laak, 2007; Hoshmand, Gere, & Wong, 2006; McGin, 2007; Miller, et al. 2000; Mohanty & Newhill, 2005; Verhulst, 2008).

Behavior problem discrepancies. Freundlich (2007) and McGinn (2007) posit that though much of the empirical literature supports the notion that adoptees are at an increased risk for behavior problems, some empirical literature highlights that adoptees may not be at an increased risk. They identified inconsistencies in the research that challenge the increased prevalence of behavior problems for adoptees. These inconsistencies are supported by numerous studies that have reported that adoptees are not at an increased risk for experiencing behavior problems compared with non-adoptees (Cedarblad, Hoesek, Irhammar, & Mercke, 1999; Goldney, Sawyer, & Kosky, 1996; Irhammar & Cederlad, 2000; Kim, Shin, & Carey, 1999; Marcovitch, Goldberg, Gold, & Washington, 1997; Plomin & DeFries, 1985; Rojewski, Shapiro, & Shapiro, 2000; Stein & Hoopes, 1985; Thompson & Plomin, 1988). These discrepancies should be taken seriously because the research community, clinical community, and general population assume behavior problems are more likely for adopted children (Fisher, 2003).

Contextual Considerations for Adoptees Potential Behavior Problems

Several contextual factors related to adoption research and the adoption context in the US are important to note as they, in part, help to justify the need for the current study: over-representation of clinical samples in existing research, the deficit view of adoption, available resources for adoptees and adoptive families, and social welfare reform.

Clinical over-representation. One explanation for the divergent findings related to adoption and behavioral problems is that many of the adopted children studied come from clinical convenience samples (Miller, et al. 2000). Due to the common use of clinical convenience samples, the apparently high prevalence of behavior problems may not represent the general adoptee population (Brand & Brinich, 1999). The existing research literature may be skewed toward more problems than really exist (Miller, 2005).

Deficit view of adoption. Several authors have argued that the adoption literature has increasingly taken a deficit view of adoption by focusing too much on problems, such as the link between adoption and the increased risk of behavior problems (Fisher 2003; Gake, 2002; Gorman, 2002; Johnston, 2004). Some have argued that this has resulted in the misrepresentation or exaggeration of the realities of adoption in textbooks and other literature (Fisher, 2003). As a result, negative assumptions have been disseminated to researchers, therapists, family members, and the general public (Kurcinka, 1998; MacLeod & Macrae, 2006; Sass & Henderson, 2007; Schooler & Atwood, 2008; White, 1995). One researcher related the following experience as she was attending a meeting in preparation for an international adoption she and her husband had applied for. She reported that she was listening to a panel of supposed specialists in adoption-related issues:

"A dozen years ago, as an excited adoptive-mother-to-be, I sat in an audience of adoptive parents listening to a presentation on developmental issues in adoptive children. The panel consisted of therapists with adopted children in their practices. After the discussion, a new dad sitting beside me turned to look at me and said, 'Well, here I am with a six-month-old adopted from Korea. Sounds like in addition to the college fund I need to start saving for therapy'" (Gorman, 2002).

This highlights that some people may automatically assume adoptions will be problematic. The above-cited literature regarding potential behavioral problems in adoptees supports this thinking. While there clearly are benefits to being aware that behavior problems are possible, the example indicates that an extreme deficit view could turn a possibility into an expected reality.

Due to the deficit view of adoption, adoptive parents may be more likely to present their children for help in counseling or other settings, thus increasing the image that adoptees are at an increased risk. In addition, people may be more likely to automatically assume that when a problem arises with a child that was adopted that the problem is due to the fact that the child was adopted, not due to other factors (Gake, 2002; Gorman, 2002; Johnston, 2004). Most of the data used in the empirical research on adoptees and behavior problems is parent reported. If parents automatically assume the adopted children may be at an increased risk for behavior problems, they may be hypersensitive to potential behavior issues they see in the adoptees. This may lead to increased behavior-problem reporting by adoptive parents, potentially leading to inaccuracies in some individual studies.

Available resources for adoptees and adoptive families. In contrast to the potential negatives associated with assuming problems may be present for adoptees, some literature suggests that in recent years helpful resources have become available that may reduce behavior problems. For example, more mental health and behavioral resources such as therapy are available in the US for adoption-specific issues (MacLeod, 2006; National Adoption Information Clearinghouse, 2006). Many books, articles, and websites have emerged in the recent past geared toward helping families navigate the transition into adoptive parenting, improve attachment, and reduce negative outcomes that could be associated with adoption (Schooler & Atwood, 2008). This has brought many helpful resources into easy reach of parents, teachers and others involved with adoptees. In addition, adoption policies and procedures are more comprehensive involving social worker visits, trainings, required reading, etc. (WHFC, 2009). These factors can help adoptive families know how to better help their adoptive children, thus potentially reducing the behavior problems they may face.

United States adoption and social welfare reform. In the mid 1990s significant social welfare reform took place in the US when then President Clinton signed several pieces of legislation in 1996 that made a significant impact on the adoption process (Eposito & Biafora, 2007). Some of the influential changes included large tax credits that became available to adoptive families, potentially enabling them to be even more prepared to assist their adoptive children's needs. It is also possible that the tax credits allowed families to adopt who may not have been able to afford it, making more adoptive parents potentially less able to provide needed services for their adopted children. In addition, restrictions were removed that historically may have prevented or discouraged

trans-racial adoptions from taking place, with new legislation that prohibited using race as a reason for not placing children in potentially beneficial adoptive families. Following this shift, general acceptance of trans-racial adoptions increased (Eposito & Biafora, 2007). These shifts in the mid 1990s were unique to the US, making adoptions that took place around and following that time potentially different than in other parts of the world.

All of these potentially relevant contextual factors that have presented themselves in recent years in the US, highlight the need for more generalizable conclusions regarding the actual prevalence of behavior issues among domestic and international adoptees. One way to reach more generalizable conclusions regarding the actual reality of behavior problems among adoptees would be to conduct a meta-analysis of the available studies that address the actual prevalence of behavior problems experienced by adoptees compared to children raised by their biological parent(s). Only a few meta-analyses have ever been conducted on adoption issues and behavior. Juffer and van IJzendoorn (2005) conducted a meta-analysis that was published in the *Journal of the American Medical Association* and it is the most thorough meta-analysis on behavioral problems and adoption that has ever been done.

Meta-analysis by Juffer and van IJzendoorn (2005)

In their analysis, Juffer and van IJzendoorn investigated behavioral issues related to children adopted both domestically and internationally. They analyzed the results from 64 studies (1961-2004) from a dozen countries around the world. They hypothesized that:

- 1) International adoptees would present more behavior problems than non-adopted controls or domestic adoptees.
- 2) For international adoptees, those with pre-adoption adversity, older ages at adoptive placement (>12 months), and males, would have an

increased risk for behavior problems and mental health referrals. 3) International adoptees would show more behavior problems in adolescence compared with the years before adolescence. Their hypotheses aligned with the bulk of the literature on behavior problems and adoptees. Their results concluded that: 1) Adoptees (international and domestic combined) showed more behavior problems than non-adopted controls ($d=0.18$). 2) International adoptees showed more behavior problems than non-adopted controls ($d=0.11$). 3) Domestic adoptees showed more behavior problems than international adoptees ($d=0.20$ vs. $d=0.11$). 4) International adoptees with pre-adoption adversity showed more behavior problems than those without pre-adoption adversity ($d=0.18$ vs $d=0.09$ respectively; contrast: $Q=6.46$; $p < .01$). 5) They did not find any difference in behavior problems between male and female international adoptees ($d=0.13$ vs $d=0.09$ respectively; contrast: $Q=1.30$; $p = .25$). 6) Internationally adopted children adopted from 0-12 months did not show significantly different behavior problems than those adopted after 12 months ($Q=2.27$; $p = .13$). Similarly, internationally adopted children adopted under the age of 24 months did not show significantly different behavior problems than those adopted after 24 months (no data reported). 7) Internationally adopted adolescents (at time of study) showed fewer behavior problems than internationally adopted younger children (at time of study) ($d=0.09$ vs $d=0.23$ respectively; contrast: $Q=13.89$; $p < .001$). 8) Internationally adopted children who had been with their adoptive families for more than 12 years showed fewer behavior problems than those who had been with their adoptive families for fewer than 12 years ($d=0.05$ vs $d=0.21$ respectively; contrast: $Q=24.07$; $p < .001$).

Their results support the notion that behavior problems may be more prevalent in adopted populations, however, the effect sizes were small suggesting the risks for behavior problems may not be as great as some of the previous literature suggests. They also surprisingly reported that domestic adoptees showed more behavior problems than international adoptees despite the potential greater risks shown from pre-adoption adversity among international adoptees. The findings that older children demonstrated fewer behavior problems than the younger children could be supported by some research. Miller (2005) posits that if healthy attachment bonds are developed over time, positive outcomes in the well being of the adopted child are likely. Juffer and van IJzendoorn provide the most comprehensive conclusive results available on behavior problems and adoptees, potentially clarifying many of the discrepancies highlighted previously.

Justification for New Meta-analysis

Even though the Juffer and van IJzendoorn study does provide clarification, there are some relevant issues highlighted in the review of the literature that show the potential benefit for replicating their study with some adjustments. It could be replicated with a sample more relevant to the recent trends in adoption and more applicable to adoptees in the US. Moderator analyses could be done with domestic and international case samples, rather than just international samples. This study will endeavor to determine if the results found by Juffer and van IJzendoorn hold true for a more recent, US-only sample, and will address additional moderator issues not addressed by Juffer and van IJzendoorn.

This study will only utilize articles that were published during the last 15 years rather than the 44-year span used in the Juffer and van IJzendoorn study. As was previously highlighted, the norms of adoption in the US were in a constant state of

change until the mid 1990s when many domestic adoption trends stabilized (Biafora & Esposito, 2007; US Department of the State, 2011). In addition, international adoption trends have seen dramatic shifts since the mid 1990s (Miller, 2005; Selman, 2006; US Department of the State, 2011). The contextual issues discussed indicate significant changes through the 1990s illustrating a vastly different picture of adoption norms in the US for the past 15 years than existed previously (Selman, 2006; Selman, 2005; Schooler & Atwood, 2008). Results from studies before the mid-1990s, the time from which many of the Juffer and van IJzendoorn articles used were published, may be less applicable to today's adoption context. Studies published before the mid-1990s may have differing results than recent studies. Using study data from the past 15 years (6 years of which transpired after the Juffer and van IJzendoorn study was published) should align results with recent trends while still providing a useful sample size.

This study will also use samples of adoptees adopted only into the US. This would include domestic adoptions in the US and international adoptions where the adoptees are adopted by families in the US. Thirty-three of the sixty-four studies used by Juffer and van IJzendoorn were from samples of adoptees that were adopted domestically or internationally in other countries including: Netherlands, Israel, Australia, the United Kingdom, Germany, Sweden, Canada, Spain, and Greece. With more than half of the studies coming from outside the US, the results may not be as applicable to adoptees in the US. As was also highlighted in the review of literature, unique factors in the US such as social welfare reform, increased availability of adoption resources in the US, and accepted adoption procedures in the US suggest behavior problems could be potentially different for US-only samples, compared with the worldwide sample used by Juffer and

van IJzendoorn (Eposito & Biafora, 2007). The last difference will be to analyze the moderating factor hypotheses on international, domestic, and combined international and domestic adoptee samples, rather than just international samples as was done by Juffer and van IJzendoorn. The questions could be relevant to both subsets of adoptions.

Purpose of Study

The purpose of this study will be to compare all adoptees with non-adopted controls; to compare international adoptees with non-adopted controls; to compare domestic adoptees with non-adopted controls; to compare international adoptees with domestic adoptees; and to examine moderators for the adoption outcomes for domestic, international, and combined international and domestic adoptees.

Though much of the existing research and the Juffer and van IJzendoorn study suggest an increased prevalence of behavior problems among adoptees, conflicting research and dramatic shifts and stabilization of adoption trends over the past 15 years suggests that it will be important to re-evaluate the questions posed by Juffer and van IJzendoorn to see if their results hold true for a more recent, US-only sample. Although there are some divergent findings in the literature, the bulk of the research seems to suggest that behavior problems are more prevalent with adoptive samples than non-adoptive samples. Hence, the research hypotheses for the current study are: (1) Adoptees (domestic and international combined) will present more behavior problems than non-adopted controls. (2) International adoptees will present more behavior problems than non-adopted controls. (3) Domestic adoptees will present more behavior problems than non-adopted controls. These first three hypotheses follow what the bulk of the published literature suggests is true that the subgroups of adoptees individually may present more

behavior problems than non-adopted controls (Baden, 2007; Friedlander, 1999; Hoksbergen & Laak, 2007; Hoshmand, Gere, & Wong, 2006; McGin, 2007; Miller, et al. 2000; Mohanty & Newhill, 2005; Verhulst, 2008). (4) International adoptees will present more behavior problems (compared to controls) than domestic adoptees (compared to controls). Though Juffer and van IJzendoorn found with their sample that international adoptees presented fewer behavior problems, their hypothesis was that domestic adoptees would present fewer problems. Their hypothesis is supported by much of the recent existing literature which generally suggests international adoptees may be at an increased risk for behavior problems compared to domestic adoptees. Issues such as the high prevalence of pre-adoptive adversity, changes in culture, difficulties with identity development, etc. are more common among international adoptees, making behavior problems potentially more prevalent (Alexander, 2006; Hoshmand, Gere, & Wong, 2006; Mohanty & Newhill, 2005; Verhulst, 2008;). (5) Moderating factors including pre-adoptive adversity, gender, age at time of assessment, age at adoptive placement, and length of time with adoptive family may be associated with an increased risk for behavior problems experienced by domestic and international adoptees. Specifically, it is hypothesized that: (a) children with preadoptive adversity will present more behavior problems; (b) males will present more behavior problems than females; (c) children older at the time of assessment will present fewer behavior problems than younger children at the time of assessment; (d) children adopted at younger ages will present fewer behavior problems than those adopted at older ages; (e) children that have been with their adoptive families for longer periods will present fewer problems than those that have been with their adoptive families for shorter periods. These moderating factor hypotheses reflect the

peer-reviewed and popular literature (Kurcinka, 1998; MacLeod & Macrae, 2006; Sass & Henderson, 2007; Schooler & Atwood, 2008; White, 1995;).

Method

The procedures used in this meta-analysis were informed by the suggested protocols established by Lipsey and Wilson (2001), Stroup et al. (2000), and Wampler, Reifman, and Serovich (2005) to ensure proper methodological procedures were followed in developing study inclusion criteria, search strategies, data extraction and coding, and statistical analysis procedures.

Study Inclusion Criteria

Before beginning the search for studies to include in the meta-analysis, study inclusion criteria were set. Only case-control studies that have adopted cases and non-adopted controls were included (if clinical norms were used as the controls in the study, the norms act as the control group). All non-adopted controls were from the US. All domestic adoptees were born and adopted within the US, and may include private and/or public adoptions. International adoptees were born in a country other than the US and adopted into a family living in the US. Studies published or written during the past 15 years (1996-2011) are included. This range provides a data set of sufficient size for the study, while utilizing data that are most applicable to the current adoption context in the US. The Juffer and van IJzendoorn study only included studies published in peer-reviewed journals. This presents some potential publishing bias problems. To combat this and strengthen the size of the data set, this study also included completed doctoral dissertations and other research publication sources such as book chapters. To be

included, studies had to utilize behavior measures such as the Child Behavior Checklist or other similar measures with sufficient data for samples and controls.

Study Exclusion Criteria

Some studies were excluded from this meta-analysis. Studies that exclusively sampled adopted children with significant problems (i.e. exposed to alcohol or drugs in-utero, physically or mentally handicapped children, and other children classified as special needs children in the studies) were excluded so that the results were not skewed. Studies that did not contain both adoptee and non-adoptee samples were excluded, unless norm scores were reported as controls in the study. In these cases, the norm scores were used as the control group. If multiple studies published the same effect size results from the same data, only the study with the most detailed data reported was used. Finally, studies that did not contain sufficient behavior problem data to calculate effect sizes were excluded.

Search Strategies

Two strategies were used in finding the studies that were included in the meta-analysis. First, electronic research databases were searched. The databases included: MEDLINE, Dissertation Abstracts, Econlit, ERIC, CSA Linguistics and Language Behavior Abstracts, PAIS Archive, PAIS International, PILOTS Database, PsychARTICLES, PsychINFO, Social Services Abstracts, and Sociological Abstracts. The key words used in the searches included adopt* combined with: behavior* problem*, behavior* disorder*, behavior* development, maladjustment, or adjustment.

Second, references and cited by references of studies found (1) through the databases, (2) through reference articles utilized in the review of literature, and (3)

literature recommended by one of the major professors of this study, were searched to find additional studies that potentially fit the inclusion criteria. Only studies in English were included. This did not limit the search, because the study is focused entirely on studies conducted in the US.

The search strategies yielded over 1,200 potential studies. Four studies met the study inclusion criteria, but did not have sufficient effect size data. The authors of those articles were contacted (see Appendix A) and asked to provide the missing data. No response has been received. Of the 1,200 potential studies, 29 met the study inclusion criteria and contained sufficient data to calculate effect sizes comparing adoptee and control samples (see Table 1). Fifteen of the studies were used in the Juffer and van IJzendoorn study, 14 were new. Six of the new studies were published between 1996 and 2005 that were either not found or not used by Juffer and van IJzendoorn and would have met the study inclusion criteria they reported. It is possible that one or more of the six studies that were found in the search strategies were found and eliminated by Juffer and van IJzendoorn. They report eliminating a few studies through the trim-and-fill method to combat publication bias. However, they do not provide information about what specific studies were eliminated. The other 8 new studies were published between 2006 and March of 2011. Of the 29 total studies, 14 have international adoptee and control samples, 15 have domestic adoptee and control samples. Most of the studies contained multiple reported samples (e.g. separate international male and international female case samples). The total number of samples extracted, coded, and analyzed was 112. Utilizing the results of this many samples was sufficient to yield a relevant meta-analysis (Lipsey & Wilson, 2001; Mullen, 1989).

Table 1

Case-Control Studies Included in Analysis

Source	Pub. Year	Included in Juffer & van Ijzendoorn Study	Study Population	Number of Samples Analyzed	Type of Diagnostic Tool	Externalizing Behavior Data	Internalizing Behavior Data	Total Behavior Data
Baker	1995	No	Domestic	3	CBCL	Yes	Yes	Yes
Borders, et al.	1998	Yes	Domestic	3	CUST	No	No	Yes
Borders, et al.	2000	Yes	Domestic	3	RPS	Yes	Yes	Yes
Cermak & Daunhauer	1997	Yes	International	1	DSPQ	No	No	Yes
Corbett	2008	No	International	3	CBCL	Yes	Yes	Yes
Deater-Deckard & Plomm	1999	Yes	Domestic	4	CBCL	Yes	No	Yes
Dedrick, et al.	2008	No	International	3	CBCL	Yes	Yes	Yes
Easterbrook	2007	No	Domestic	3	CBCL	Yes	Yes	Yes
Fan, et al.	2002	Yes	Domestic	1	AHDS	No	No	Yes
Feigelman	1997	Yes	Domestic	3	CUST	Yes	No	Yes
Feigelman	2001	No	Domestic	6	CUST	Yes	Yes	Yes
Hoopes, et al.	1997	Yes	Domestic	3	CBCL	Yes	Yes	Yes
Howard, et al.	2004	Yes	International	1	BPI	No	No	Yes
Judge	2003	Yes	International	1	TABS	No	No	Yes
Kaldec & Cermak	2002	No	International	2	DSPQ	No	No	Yes
Kim, et al.	1999	Yes	International	3	CBCL	Yes	Yes	Yes
Lansford, et al.	2001	Yes	Domestic	6	CBCL	Yes	Yes	Yes
Norris	2006	No	International	3	CBCL	Yes	Yes	Yes
Pinderhughes	1998	Yes	Domestic	6	CBCL	Yes	Yes	Yes
Proctor	2006	No	International	4	CBCL	No	No	Yes
Rojewski, et al.	2000	Yes	International	2	BASC	No	No	Yes
Sharma, et al.	1996	Yes	Domestic	6	PSL	Yes	Yes	Yes
Sharma, et al.	1998	Yes	International	12	CBCL	Yes	Yes	Yes
Stewart	2010	No	Domestic	2	CBEPS	No	No	Yes
Tan	2004	No	International	12	CBCL	Yes	Yes	Yes
Tan & Marfo	2006	No	International	6	CBCL	Yes	Yes	Yes
Tully, et al.	2008	No	Domestic	2	CUST	Yes	No	Yes
Weinberg, et al.	2004	No	Domestic	4	CUST	No	No	Yes
Wiik, et al.	2011	No	International	4	HBQ	Yes	No	Yes

Note. Abbreviations: AHDS, Add Health Data Set; BASC, Behavior Assessment System for Children; BPI, Behavior Problem Index; CBCL, Child Behavior Checklist; CBEPS, Child Behavior and Emotion Problem Scale; CUST, Custom Assessment Created for Study; DSPQ, Developmental & Sensory Processing Questionnaire; HBQ, MacArthur Health and Behavior Questionnaire; PSL, Profiles of Student Life: Attitudes and Behaviors; RPS, Risk Prediction Scales; TABS, Temperament and Atypical Behavior Scale.

Data Extraction and Coding

A detailed code book was created to guide the extraction and coding processes (see Appendix B). The author on the study being replicated was contacted and asked to provide the code book that was utilized in their study to help inform the creation of the codebook for this study. No response was received. A code book developed by one of the major professors supervising this study (for a separate research project) was used as a guiding sample in the creation of this code book.

Extraction and coding were independently completed by the primary researcher and a graduate student in a marriage and family therapy graduate program. The graduate student was recruited to participate voluntarily. The graduate student had prior experience interpreting social science research and was trained in coding procedures by the primary researcher. Before the coding process began the graduate student coder coded 2 studies with the primary investigator to ensure adequate training and consistency in the extraction and coding processes. Throughout the extraction/coding process, the coders discussed the extracted/coded data in each study before final data was recorded. Coders were in agreement for approximately 95% of the variables. The variables that had the most discrepancies were the number of subjects because often multiple n's were recorded in different sections of the analyses. To address the discrepancies, input was sought from the other coder until a consensus was reached. Consensus was easily reached for all but one study. In this case, the input of one of the major professors supervising this study was utilized to help reach a consensus. This process ensured reliability in the extraction/coding processes. Each coder was provided a unique coder ID and each study was provided a unique study ID for the extraction and coding processes.

Descriptive data. Sample sizes for the case and control samples were extracted. If clinical norms for the diagnostic tool were used for the control group, the information provided regarding norm sample size, if available, was recorded. The year the study was published (for peer-reviewed publications, book chapters, etc.), or presented to the University (for dissertations) was extracted. If the study was included in the Juffer and van IJzendoorn study it was coded as yes, or no if it was not included.

Study quality. In an effort to determine study quality, five questions relevant to study quality were extracted/answered. Each of the five questions were equally weighted and combined to create an overall study quality score. First, coders subjectively rated the quality of the study. The subjectivity rating was as follows: (0) poor, (0.25) below average, (0.5) average, (0.75) above average, and (1) excellent. The coders were encouraged to rate the subjective quality of the studies based on their experience reading articles, being trained in research methods, and conducting research. Sample size was also extracted and coded as (0) less than 50, (0.25) 51 to 100, (0.5) 101 to 500, (0.75) 501 to 1000, and (1) greater than 1000. If the instrument measuring the behavior problem data had established validity and reliability it was coded as (1) yes or (0) no. The type of publication outlet that was utilized for the study was coded as (1) peer-reviewed journal and (0) other (e.g. dissertation, book chapter, etc.). The last study quality assessment used was if the researcher discussed limitations of the study; coded as (1) yes, or (0) no. The coded responses for these five questions were then added together and divided by 5 to create an overall study quality score on a 0 to 1 scale. Because the subjective scale presented the possibility of slight discrepancies between the coders, each of the coders overall scores were averaged to create the overall study quality score. Studies were coded

as high-quality if they were in the upper 50% of scores and low-quality if they were in the lower 50% of scores.

Case moderator data. Case moderator data that were extracted were the same as those utilized by Juffer and van IJzendoorn and included: gender, age at time of assessment, age at time of adoption placement, duration of time with adoptive family, and pre-adoptive adversity. Gender was coded as male or female. Age at time of assessment was coded as 0 to 12 years, older than 12 years, or treated as missing if data was not reported or extractable. Age at the time of adoption placement was coded as 0 to 12 months, 13 to 24 months, older than 24 months, or treated as missing if data was not reported or extractable. Duration of time with adoptive family was coded as 0 to 12 years, more than 12 years, or treated as missing if data was not reported or extractable. Studies were coded as having pre-adoptive adversity if at least 50% of the sample experienced extreme deprivation. Extreme deprivation included: serious neglect, institutionalization for longer than 1 month, malnutrition, and/or abuse. Studies were coded as having no pre-adoptive adversity if data were not reported, extractable, or if it is not clear if there was pre-adoptive adversity.

Effect size data. Effect size data were also extracted. The type of diagnostic tool used to assess the behavior problems were extracted (e.g. Child Behavior Checklist). If studies used more than one behavior assessment, the assessment that had established reliability and validity was used. If the multiple behavior assessments had established reliability and validity, the assessment that most closely aligned with the overall, externalizing, and/or internalizing behavior problem constructs was used. Case and control group scores on the behavior problem diagnostic tools were extracted. Means,

standard deviations, and any reported significance scores that could be transformed into *Cohen d* were extracted. These scores enabled the effect sizes to be calculated. They were coded as overall behavior scores reported if the study defines them as overall behavior scores, or did not specify if the scores were overall, externalizing, or internalizing. Data were coded as external behavior scores (e.g. aggression, delinquency, hyperactivity) if the study defined them as externalizing behavior scores. Data were coded as internalizing behavior scores (e.g. withdrawn, anxious, or depressed) if the study defined them as internalizing behavior scores. If overall scores were not reported, but both internalizing and externalizing scores were reported, overall scores were calculated from combined internalizing and externalizing scores. If studies contained pre-tests and post-tests, behavior problem data from pre-tests were used to remove any impact of interventions so the data best represents the general population. If studies were longitudinal studies, data from the earliest wave of data were used to also remove study-related impacts on data.

Statistical Analysis Procedures

Data were analyzed using the Biostat statistical software Comprehensive Meta-Analysis version 2 (Borenstein, Hedges, Higgins, & Rothstein, 2005). Effect sizes were calculated to address the first four hypotheses. Data were transformed into *Cohen d*, an effective effect size statistic for analyzing the difference between two groups (Mullen, 1989). The *Cohen d* statistic can show small effects ($d < 0.20$), moderate effects ($d \sim 0.50$), and large effects ($d > 0.80$). The means and standard deviations of the behavior measure results of the various adoptive groups and non-adoptive controls were extracted from each study to calculate the *Cohen d* statistics. Sample sizes of the groups were also recorded.

To address the fifth hypothesis, moderator analyses were conducted. Sample characteristics including gender, age at the time of assessment, age at adoptive placement, duration of time with adoptive family, and pre-adoptive adversity were used for the moderator analyses. Not all studies contain information on the sample characteristics. Only those with the characteristics were used for the moderator analyses. There were insufficient data on certain sample characteristics to conduct moderator analyses. In these cases, the moderators were not examined. Study quality was also examined. The overall study quality scores ranged from 0.35-1.0 with a median score of 0.7. There were no natural breaks in the scores, and the majority of the scores were weighted around the median with most ranging between .55 and .85. The approximately 50% of studies above 0.7 were considered high-quality and those at or below 0.7 were considered low-quality for the analysis.

The Q statistic was used for all the analyses to assess homogeneity. Fixed effects scores were utilized for homogeneous studies, and random effects were utilized for heterogeneous studies. Confidence intervals (CI) of 95% were used around the point estimate of the effect size for all the analyses except the moderator contrast analyses. The significance of moderators were assessed using 85% CI's, as was done in the Juffer and van IJzendoorn study.

Results

Results regarding overall behavior problems, externalizing behavior problems, and internalizing behavior problems are presented for all the research questions (see Tables 2 and 3). All results compare adoptees to non-adopted controls.

Adoptees Behavior (Domestic and International Combined)

The analysis indicates that adoptees show significantly more total ($d, 0.29$; 95% CI, 0.21-0.36; $p < .001$), externalizing ($d, 0.32$; 95% CI, 0.21-0.42; $p < .001$), and internalizing ($d, 0.26$; 95% CI, 0.17-0.35; $p < .001$) behavior problems than non-adoptees. Effect sizes were small. All sets of studies were heterogeneous.

International Adoptees Behavior

In the international-only analysis it was found that international adoptees show significantly more total ($d, 0.33$; 95% CI, 0.19-0.47; $p < .001$), externalizing ($d, 0.36$; 95% CI, 0.13-0.60; $p < .01$), and internalizing ($d, 0.23$; 95% CI, 0.08-0.39; $p < .01$) behavior problems than non-adoptees. Effect sizes were in the small to moderate range. All sets of studies were heterogeneous.

Domestic Adoptees Behavior

Finally, like the previous two analyses, the domestic-only analysis found that domestic adoptees show significantly more total ($d, 0.24$; 95% CI, 0.16-0.31; $p < .001$), externalizing ($d, 0.27$; 95% CI, 0.17-0.37; $p < .001$), and internalizing ($d, 0.29$; 95% CI, 0.17-0.40; $p < .001$) behavior problems than non-adoptees. Effect sizes were small. All sets of studies were heterogeneous.

Table 2

Meta-analytic Results Comparing Behavior Problems of Adoptees and Non-adopted Controls

	Adoptees N / Non-adopted Controls N	df	Effect Size, <i>d</i> (95% CI)	Q
Adoptees Behavior (Domestic and International Combined)				
Total behavior problems	16650 / 61567	53	0.29 (0.21-0.36)***	261.21
Externalizing behavior problems	15001 / 25523	32	0.32 (0.21-0.42)***	287.17
Internalizing behavior problems	7753 / 24390	25	0.26 (0.17-0.35)***	125.76
International Adoptees behavior				
Total behavior problems	2837 / 10924	24	0.33 (0.19-0.47)***	162.96
Externalizing behavior problems	2169 / 9353	13	0.36 (0.13-0.60)**	208.56
Internalizing behavior problems	2027 / 9201	11	0.23 (0.08-0.39)**	62.92
Domestic Adoptees Behavior				
Total behavior problems	13813 / 50643	28	0.24 (0.16-0.31)***	92.38
Externalizing behavior problems	12832 / 16170	18	0.27 (0.17-0.37)***	69.93
Internalizing behavior problems	5726 / 15189	13	0.29 (0.17-0.40)***	57.19

Note. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 3

Contrast Results Comparing International Adoptees to Domestic Adoptees

	Effect Size Comparison	Contrast Q Score
Total Behavior Problems	0.33 vs. 0.24	1.33
Externalizing Behavior Problems	0.36 vs. 0.27	0.50
Internalizing Behavior Problems	0.23 vs. 0.29	0.29

Note. *** $p < .001$, ** $p < .01$, * $p < .05$

International Adoptees Compared to Domestic Adoptees

As was presented above, international adoptees and domestic adoptees show significantly more total, internalizing, and externalizing behavior problems than non-adoptees. The results of international adoptees and domestic adoptees were compared to evaluate if international adoptees are more prone to behavior problems than their domestic counterparts. There were no significant differences in total behavior problems (d , 0.33 vs. d , 0.24, respectively; $Q = 1.33$; $p = .25$), externalizing behavior problems (d , 0.36 vs. d , 0.27, respectively; $Q = 0.50$; $p > .48$), and internalizing behavior problems (d , 0.23 vs. d , 0.29, respectively; $Q = 0.29$; $p = .59$) between international adoptees and domestic adoptees.

Moderating Factors

Results for moderators of total behavior problems, externalizing behavior problems, and internalizing behavior problems are presented below. For more detailed effect size information, see Tables 3-6. Table 3 presents the contrasting results between moderators. Those with significant differences are so indicated. Tables 4-6 show the effect size results for the samples used in the moderator analyses. Those that show significant effects compared to non-adopted children are indicated by asterisks.

In order to align the results of this study with those by Juffer and van IJzendoorn, an 85% confidence interval was used in the moderator analyses.

Adoptees (international and domestic combined). Adoptees under the age of 12 at the time of assessment (heterogeneous set of studies) showed significantly more total behavior problems than adoptees over the age of 12 at the time of assessment (homogeneous set of studies) (d , 0.37 vs. d , 0.20, respectively; $Q = 8.67$; $p < .01$).

Adoptees under the age of 12 at the time of assessment (heterogeneous set of studies) showed significantly more externalizing behavior problems compared to adoptees over the age of 12 at the time of assessment (heterogeneous set of studies) (d , 0.49 vs. d , 0.16, respectively; $Q = 12.25$; $p < .001$).

Adoptees who had lived with their adoptive families for 12 years or more (heterogeneous set of studies) tended to show less total behavior problems compared to adoptees who had lived with their adoptive families for fewer than 12 years (homogeneous set of studies) (d , 0.38 vs. d , 0.19, respectively; $Q = 3.53$; $p < .15$).

Adoptees who had lived with their adoptive families for 12 years or more (heterogeneous set of studies) tended to show less externalizing behavior problems compared to adoptees who had lived with their adoptive families for fewer than 12 years (homogeneous set of studies) (d , 0.41 vs. d , 0.18, respectively; $Q = 2.56$; $p < .15$).

None of the remaining moderators for the combined sample showed significant differences in total, externalizing, or internalizing behavior problems. Several had insufficient data to conduct the analyses.

International adoptees. None of the moderators for the international samples showed significant differences in total, externalizing, or internalizing behavior problems, although several had insufficient data to conduct the analyses.

Domestic adoptees. Male domestic adoptees (homogeneous set of studies) showed significantly more externalizing behavior problems than female domestic adoptees (homogeneous set of studies) (d , 0.27 vs. d , 0.12, respectively; $Q = 15.95$; $p < .001$). Domestic adoptees who had lived with their adoptive families for 12 years or more (homogeneous set of studies) tended to show less total behavior problems than domestic

adoptees who had lived with their adoptive families for fewer than 12 years (heterogeneous set of studies) (d , 0.19 vs. d , 0.68, respectively; $Q = 2.84$; $p < .15$).

None of the remaining moderators for the domestic samples showed significant differences in total, externalizing, or internalizing behavior problems, although, again, several had insufficient data to conduct the analyses.

Study quality. Study quality (high vs. low) did not moderate the relationship between adoptee and non-adoptee samples for total behavior (d , 0.28 vs. d , 0.31, respectively; $Q = 0.16$; $p > .05$), externalizing behavior (d , 0.32 vs. d , 0.32, respectively; $Q = 0.00$; $p > .05$), or internalizing behavior (d , 0.23 vs. d , 0.41, respectively; $Q = 1.50$; $p > .05$) problems.

Table 4
Meta-analytic Contrast Moderator Results

	Combined Adoptees		International Adoptees		Domestic Adoptees	
	Effect Size Comparison	Contrast Q Score	Effect Size Comparison	Contrast Q Score	Effect Size Comparison	Contrast Q Score
Total Behavior Problems						
Adversity	0.31 vs. 0.28	0.21	0.31 vs. 0.34	0.04	0.30 vs. 0.23	0.29
Gender	0.24 vs. 0.17	0.06	0.18 vs. 0.30	0.26	0.18 vs. 0.18	0.01
Assessment Age	0.37 vs. 0.20	8.67**	0.21 vs. 0.38	0.22	0.21 vs. 0.38	0.22
Placement Age	0.37 vs. 0.36	0.00	0.29 vs. 0.38	0.34	-	-
Time with Family	0.38 vs. 0.19	3.53†	-	-	0.19 vs. 0.68	2.84†
Externalizing Behavior Problems						
Adversity	0.34 vs. 0.31	0.21	-	-	0.37 vs. 0.26	0.48
Gender	0.27 vs. 0.12	0.60	-	-	0.27 vs. 0.12	2.01***
Assessment Age	0.49 vs. 0.16	12.25***	-	-	-	-
Placement Age	0.37 vs. 0.52	0.81	0.22 vs. 0.54	2.34	-	-
Time with Family	0.41 vs. 0.18	2.56†	-	-	0.18 vs. 0.38	0.76
Internalizing Behavior Problems						
Adversity	0.25 vs. 0.26	0.01	-	-	0.25 vs. 0.29	0.08
Gender	0.13 vs. 0.13	0.00	-	-	0.13 vs. 0.13	0.00
Assessment Age	0.31 vs. 0.26	8.67	-	-	-	-
Placement Age	0.40 vs. 0.38	0.00	-	-	-	-
Time with Family	-	-	-	-	-	-

Note. -, insufficient data available to analyze; *** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .15$; Adversity = pre-adoptive adversity vs. no pre-adoptive adversity; Sex: Male vs. Female; Assessment Age: >12 years at assessment vs. <12 years at assessment; Placement Age: 0-12 months vs. >12 months; Time with Family: >12 years with adoptive family vs. <12 years with adoptive family.

Table 5
Total Moderator Meta-analytic Results

	Adoptees N / Non-adopted Controls N	df	Effect Size, <i>d</i> (95% CI)	Q
Adoptees Behavior Problems (International and Domestic Combined)				
Pre-adoptive Adversity				
Yes	666 / 1040	13	0.31(0.21-0.42)***	9.47
No	15,984 / 60,527	39	0.28 (0.20-0.36)***	248.96
Gender				
Male	5,867 / 7,466	8	0.24 (0.19-0.30)***	11.30
Female	6,675 / 12,764	10	0.17 (0.01-0.33)*	61.69
Age at Time of Assessment				
0-12 years	2,478 / 19,875	20	0.37 (0.25-0.48)***	83.75
>12 years	12,577 / 35,416	12	0.20 (0.16-0.23)***	15.95
Age at Adoptive Placement				
0-12 years	1,206 / 1,197	8	0.37 (0.17-0.56)***	26.07
>12 years	1,296 / 2,209	11	0.36 (0.19-0.54)***	42.95
Time with adoptive family				
0-12 years	3,178 / 25,049	29	0.38 (0.24-0.51)***	194.80
>12 years	792 / 762	1	0.19(0.06-0.33)**	0.30
International Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	961 / 3,169	7	0.31 (0.20-0.45)***	8.62
No	1,876 / 7,683	16	0.34 (0.16-0.52)***	153.76
Gender				
Male	627 / 618	5	0.18 (-0.05-0.42)	0.72
Female	786 / 2,645	3	0.30 (-0.07-0.67)	38.82
Age at Time of Assessment				
0-12 years	1,661 / 8,480	19	0.38 (0.27-0.50)***	61.95
>12 years	447 / 769	1	0.21 (-0.54-0.95)	0.47
Age at Adoptive Placement				
0-12 years	224 / 618	2	0.29 (0.06-0.52)*	1.31
>12 years	1,512 / 8,271	10	0.38 (0.20-0.56)***	41.80
Time with adoptive family				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Domestic Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	145 / 120	5	0.30 (0.06-0.55)	0.86
No	13,668 / 50,523	22	0.23 (0.15-0.31)***	90.90
Gender				
Male	5,731 / 7,330	4	0.18 (0.12-0.23)***	10.34
Female	5,907 / 7,517	4	0.18 (0.03-0.33)**	3.64
Age at Time of Assessment				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Age at Adoptive Placement				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Time with adoptive family				
0-12 years	433 / 14,217	6	0.68 (0.13-1.23)**	32.52
>12 years	792 / 762	1	0.19 (0.06-0.33)**	0.30

Note. -, insufficient data available to analyze; *** $p < .001$; ** $p < .01$; * $p < .05$.

Table 6
Externalizing Moderator Meta-analytic Results

	Adoptees N / Non-adopted Controls N	df	Effect Size, <i>d</i> (95% CI)	Q
Adoptees Behavior Problems (International and Domestic Combined)				
Pre-adoptive Adversity				
Yes	168 / 157	4	0.34 (0.11-0.56)**	0.78
No	14,833 / 25,366	27	0.31 (0.20-0.43)***	285.78
Gender				
Male	5,754 / 7,353	5	0.27 (0.21-0.32)***	8.92
Female	6,515 / 12,604	7	0.12 (-0.4-0.28)	36.55
Age at Time of Assessment				
0-12 years	1,561 / 4,267	10	0.49 (0.34-0.64)***	40.49
>12 years	12,044 / 15,176	8	0.16 (0.06-0.26)***	24.15
Age at Adoptive Placement				
0-12 years	1,145 / 1,136	7	0.37 (0.14-0.59)***	27.07
>12 years	807 / 816	4	0.52 (0.27-0.78)***	15.30
Time with adoptive family				
0-12 years	2,123 / 9,303	13	0.41 (0.27-0.38)***	205.75
>12 years	792 / 762	1	0.18 (0.12-0.35)**	0.80
International Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	-	-	-	-
No	-	-	-	-
Gender				
Male	-	-	-	-
Female	-	-	-	-
Age at Time of Assessment				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Age at Adoptive Placement				
0-12 years	590 / 5,070	1	0.22 (-0.08-0.52)	0.21
>12 years	1,579 / 4,283	3	0.54 (0.25-0.83)***	14.84
Time with adoptive family				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Domestic Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	100 / 81	3	0.37 (0.07-0.67)*	0.65
No	12,732 / 16,089	14	0.26 (0.16-0.36)**	67.21
Gender				
Male	5,731 / 7,330	4	0.27 (0.22-0.33)**	7.36
Female	5,907 / 7,512	4	0.12 (0.06-0.17)**	2.35
Age at Time of Assessment				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Age at Adoptive Placement				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Time with adoptive family				
0-12 years	46 / 42	1	0.38 (-0.04-0.80)	0.01
>12 years	792 / 762	1	0.18 (0.05-0.32)*	0.80

Note. -, insufficient data available to analyze; *** $p < .001$; ** $p < .01$; * $p < .05$.

Table 7
Internalizing Moderator Meta-analytic Results

	Adoptees N / Non-adopted Controls N	df	Effect Size, <i>d</i> (95% CI)	Q
Adoptees Behavior Problems (International and Domestic Combined)				
Pre-adoptive Adversity				
Yes	100 / 81	3	0.25 (-0.05-0.54)	0.69
No	7,653 / 24,309	21	0.26 (0.17-0.36)***	125.08
Gender				
Male	2,528 / 7,188	3	0.13 (-0.06-0.33)	45.32
Female	3,327 / 12,480	5	0.13 (-0.08-0.35)	8.38
Age at Time of Assessment				
0-12 years	1,419 / 4,115	8	0.31 (0.17-0.45)***	24.46
>12 years	5,094 / 14,383	5	0.26 (0.22-0.30)***	1.89
Age at Adoptive Placement				
0-12 years	223 / 180	3	0.40 (-0.10-0.89)	14.63
>12 years	739 / 740	3	0.38 (0.07-0.69)*	13.34
Time with adoptive family				
0-12 years	-	-	-	-
>12 years	-	-	-	-
International Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	-	-	-	-
No	-	-	-	-
Gender				
Male	-	-	-	-
Female	-	-	-	-
Age at Time of Assessment				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Age at Adoptive Placement				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Time with adoptive family				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Domestic Adoptees Behavior Problems				
Pre-adoptive Adversity				
Yes	100 / 81	3	0.25 (-0.05-0.54)	0.70
No	5626 / 15108	9	0.29 (0.17-0.42)	56.46
Gender				
Male	2505 / 7165	2	0.13 (-0.11-0.37)	10.49
Female	2719 / 7393	2	0.13 (-0.12-0.38)	8.22
Age at Time of Assessment				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Age at Adoptive Placement				
0-12 years	-	-	-	-
>12 years	-	-	-	-
Time with adoptive family				
0-12 years	-	-	-	-
>12 years	-	-	-	-

Note. -, insufficient data available to analyze; *** $p < .001$; ** $p < .01$; * $p < .05$.

Discussion

Adoptees Behavior

The results of this study indicate that adoptees are more likely to experience total, internalizing, and externalizing behavior problems than their non-adopted counterparts, confirming the results found by Juffer and van IJzendoorn (2005) for combined adoptee and international adoptee samples. The current study also found that domestic adoptees are more likely to experience behavior problems (total, internalizing, and externalizing) than their non-adopted counterparts, adding new relevant findings to those found by Juffer and van IJzendoorn, as they did not analyze the domestic sample in isolation. Similar to Juffer and van IJzendoorn, the effect sizes of all three groups (combined domestic and international, domestic-only, and international-only) were on the smaller end of the spectrum. However, some of the effect sizes were slightly closer to the moderate range than those found by Juffer and van IJzendoorn.

The results of this study confirm that adoptees are still at a greater risk for experiencing behavior problems than are non-adoptees, despite the many changes in the adoption landscape over the last 15 years. These changes, including the number of international, domestic public, and domestic private adoptions, the countries from which international adoptees are coming from, social welfare reform, and the availability of resources for adoptees and adoptive families, may not have influenced the behavior problem norms of adoptees compared to non-adoptees. Hence, these cultural and contextual influences may not serve as protective factors against increased behavioral problems for adopted children.

These results indicate that, like much of the empirical and popular literature suggests, consideration for behavior issues among adoptees is important (Baden, 2007; Mohanty & Newhill, 2005; Verhulst, 2008). Recognizing the potential reality of behavior problems for an adopted child can help parents prepare for and effectively deal with behavior issues as they may surface. Social service workers and adoption agencies should prepare parents for this by providing training and resources to cope with behavior problems should they arise. Many of the more-recently available resources such as the adoption tax credit, mental health professionals specializing in adoption issues, trainings for adoption caregivers, books, websites, and magazine articles, can be utilized by caregivers, teachers, health care providers, and others that may interact with adoptees. These resources were not nearly as prevalent historically, and the utilization of them may still help reduce behavior problems among adoptees in the future and/or help parents better cope with children's behavior problems when they arise (McGinn, 2007; Schooler & Atwood, 2008).

It is important to consider the implications of the small to moderate effect sizes. Even though behavior problems are more likely to exist for adoptees, the extent of the problems may not be as great as much of the literature, adoption social service workers, and adoptive caregivers may assume. So, while it is important to be aware of potential behavior problems, over-emphasizing them could lead to un-necessary hypersensitivity to potential problems, and a perpetual deficit view of adoption (Gorman, 2002; Gake, 2002; & Johnston, 2004).

Contrary to the results of the Juffer and van IJzendoorn study, the results of this study indicate that with a US-only sample, there was no significant difference in behavior

problems between international and domestic adoptee samples. Juffer and van IJzendoorn found that domestic adoptees are more prone to behavior problems than international adoptees. Juffer and van IJzendoorn had not expected domestic adoptees to be more likely to manifest behavior problems than international adoptees. Similarly, the hypothesis of this study predicted that international adoptees would be significantly more likely to experience behavioral problems than domestic adoptees. Issues such as the high prevalence of pre-adoptive adversity, changes in culture, difficulties with identity development, etc. are more common among international adoptees, making behavior problems potentially more prevalent (Alexander, 2006; Hoshmand, Gere, & Wong, 2006; Mohanty & Newhill, 2005; Verhulst, 2008). These issues may lead to an incorrect assumption that international adoptees may be more prone to behavior problems than domestic adoptees. The results of this study suggest that the key factor influencing problem behavior may have more to do with being adopted than where the child was adopted from.

Another potential explanation for the lack of differences between international and domestic adoptees may be family socio-economic status (SES). Families that adopt children internationally tend to have higher SES than those that adopt domestically. Domestic adoptions can cost anywhere from \$0 to \$25,000, while international adoptions cost between \$25,000 and \$45,000 (Bethany, 2011). In addition, international adoption programs often have net worth requirements. As a result, families that are able to adopt internationally tend to have higher SES. According to the National Data Resource Center for Child and Adolescent Health (2006), children raised in families with higher SES tend to present fewer behavioral problems. It is possible that the internationally adopted

children would be pre-disposed for more behavior problems, but, the differences accounted for by SES could offset those discrepancies.

A final consideration may be due to the prevalence of public adoptions in recent years. Several studies report that public domestic adoptees can have more behavior problems than private domestic adoptees (Barth et al., 2005; Leveille & Chamberland, 2010). Because there has been a steady increase in the number of public adoptions over the years, adding these adoptees to the shrinking pool of private domestic adoptees may balance out the international adoptees that have experienced pre-adoptive adversity, changes in culture, difficulties with identity development, and other things that may contribute to poor behavior. This may result in a much more similar pool of international adoptees compared to domestic adoptees than has typically been assumed. It is also possible that changes in how international adoptees are cared for before adoption could also account for the change. Since we used a recent sample, it is possible that international adoptees have been better cared for, making their experiences more similar to children placed for adoption domestically.

Whatever the reason for the similar results between the international and domestic adoptee samples, it will be important to recognize the lack of significant differences between the groups. Adoption agencies, social service workers, and adoptive parents should be cautious in perpetuating the assumption that international adoptees are more likely to have behavior problems than their domestic counterparts.

Moderators

Contrary to the hypothesis and the results presented by Juffer and van IJzendoorn, pre-adoptive adversity was not shown to be a moderating factor for behavior problems

among adoptees. It was assumed that issues such as attachment injuries, poor nutrition, post-traumatic stress, and other similar factors could impact the behavior of adoptees (Mertz & McCall, 2010). However, the results in the current study do not support this. This may be due in part to the resilience of adoptees. A recent study has indicated that adoptees are quite resilient and can recover from the negative ramifications associated with pre-adoptive adversity (Greene, Kelly, Nixon, et al., 2008). This may account for the results. It should be mentioned that, as was discussed in the method section, adoptees with severe pre-adoptive adversity were not included in the study. It is possible that the assumption of adoptees having behavior problems due to pre-adoptive adversity may be influenced too heavily by the extreme cases of pre-adoptive adversity. More minor pre-adoptive adversity may not be as lasting in its negative impact. However, this would not account for the difference between this study and the Juffer and van IJzendoorn study because the same criterion were used to rule out severe cases in both studies. It is possible that adoptees from the last 15 years are different from children adopted earlier.

It is also possible that the difference could be because adoptive families are better prepared to help offset negative outcomes associated with pre-adoptive adversity (Schooler & Atwood, 2008). Hence, even if there was pre-adoptive adversity, the problems that could have resulted may have been improved by the time of assessment. The difference may also be accounted for by the dissimilarity in adverse settings in recent years. For example, lengthy institutionalization was considered adversity. Institutionalized settings may be more advanced in recent years compared to those as far back as 44 years ago used by Juffer and van IJzendoorn. Adoptees that spent time in them in recent years may not be as negatively impacted as those in historical institutions.

Similar to the results presented by Juffer and van IJzendoorn, no significant differences were found between male and female adoptees in all but one of the moderator analyses with sufficient data. However, the male domestic adoptee sample was shown to have significantly more externalizing behavior problems than the domestic female sample. These mixed findings can be supported by various studies. Some research indicates that male adoptees may be more prone to have behavior problems than female adoptees (Ernst, 2000; Stams, et al., 2000; Verhulst, et al. 1990). Specifically, in one study male adoptees were shown to have more externalizing behavior problems than female adoptees (Fagot & Leve, 1998). In contrast, in another study, gender was not a predicting factor of behavior problems, supporting the findings of no gender differences in this study (Paperny, 2004).

The contradictory findings indicate the need to further explore if and why gender may influence behavior of adoptees. The overall sample showing no significant differences among males and females, and the domestic male adoptees showing significantly more externalizing behavior than domestic female adoptees indicates some potential inconsistencies. It is unclear if an international-only sample would have yielded the same results on externalizing due to insufficient data to run that analysis. It is possible if that data were available that some clarity could be found.

Age at time of assessment was the only moderator to show some consistent significant differences at a 95% confidence interval. Like the Juffer and van IJzendoorn study, children under the age of 12 at the time of assessment demonstrated significantly more behavior problems than children over the age of 12 at the time of assessment. This was found for the combined adoptee samples in total behavior problems and externalizing

behavior problems. No significant differences were found for internalizing problems, or for the domestic and international subsamples with sufficient data. This may be explained by national behavior problem norms. According to the National Survey of Children's Health (2007), younger children are more often reported to have behavior problems than older children. Hence, it is possible that some of the difference could be accounted for by simple norms of age rather than adoption-related reasons.

Another explanation for the differences shown between younger and older children may have to do with the attachment bonds. Research suggests adoptees can improve their attachment bonds over time, thus potentially reducing the behavior problems among older adoptees (Hughes, 2007). Some literature shows that adoptees demonstrated a reduction in behavior problems over time when they lived in families where healthy relationships existed and attachment bonds were fostered (Groza, Ryan, & Cash, 2003). This could explain the difference found between younger and older adoptees. When children can bond more with the family over time, their behavior may have improved.

The results showed differences between adoptees that had spent less than 12 years with their adoptive families compared with those that spent more than 12 years with their adoptive families. It should be mentioned that there were only a few studies available for this analysis. Hence, the results should be interpreted with some caution. These results are also consistent with those found by Juffer and van IJzendoorn. The research by Groza, Ryan, and Cash (2003) would suggest that behavior would improve over time due to healthy family relationships. Their work found that adoptees showed reductions in their behavior problems when they developed long-term healthy bonds with their

adoptive families. This could be very important to consider, because even if adoptees are at a greater risk of experiencing behavior problems, healthy family bonds may be a helpful antidote.

The results did not show any significant differences between children adopted when they were younger than 12 months, compared to those adopted after 12 months, as was also reported by Juffer and van IJzendoorn. These results are contrary to the literature that posits that children adopted at younger ages may be less likely to experience behavior problems than those adopted at older ages (Hawk & McCall, 2010). The results of this study indicate that age at time of adoption may not be as influential as some assume. However, many children are adopted long past 12 months of age, so using 12 months as the cutoff may also be a hindering factor. Had there been sufficient data to analyze the question with more cutoffs than 12 months, it is possible different results could have been found. For example, it has been suggested that children adopted over the age of 3 may struggle because of missed bonding with their permanent parents that occurs during the first 36 months of their lives (McGinn, 2007). The cutoff age used by Juffer and van IJzendoorn was 12 months as is standard in the larger literature in this area, although future research utilizing different age cut-offs seems to be needed.

Many of these moderators had insufficient data to run the moderator analyses. In addition, of the ones that had enough studies, often there were still only a few studies that had the data to run the results. Hence, some caution should be used when considering the implications of these results. It is possible that a larger sample size would have yielded different results. The small sample size on some of the analyses could also explain discrepancies between what was expected and what the results indicated.

The last moderating issue investigated was study quality. Though this was not an issue evaluated by Juffer and van IJzendoorn, it was reasonable to assume that lower-quality studies may yield different results than higher-quality studies. However, no significant differences were found. This could be attributed to the fact that dissertations were often classified as lower-quality studies because they had not yet been published in peer-reviewed journals. They made up a large percentage of the lower-quality studies. However, many of the dissertations were recent, thus reducing the chance for them to have time to be published in peer-reviewed journals, even if the research was as good as that which was published in peer-reviewed journals.

Another reason may be that most of the studies scored highly on the study quality scale, indicating that most of the studies were of high quality. The minor differences in the quality may not have been sufficient to influence outcomes. In addition, the process of quantifying them was a subjective process, both in how study quality parameters were determined, and how they were eventually evaluated. Even though efforts were made to establish as reliable a system as possible, the scale created did not have established reliability or validity. Hence, if another researcher were to create study quality parameters and evaluate the same studies on their parameters, it is possible they would have some differences in which studies were classified as high-quality vs. low-quality.

Limitations

The results of this study should be considered in light of several limitations. First, many of the results discussed were based on combined international and domestic adoptee samples. Some of the conclusions may not hold true for international-only and domestic-only samples. Second, related to the moderator analyses, only a few studies

were available for some of the moderator analyses, therefore many of the moderator analyses could not be conducted because of the lack of available data. The moderator results may need to be viewed with caution due to the lack of available studies for some of the results. In addition, since only a few of the potential moderators demonstrated consistent moderating influence, further exploration may be needed regarding what may be impacting behavior problems among adoptees. The moderators presented are based on what most of the empirical literature points to as potential reasons for behavior problems among adoptees. However, this study does not support the conclusion that they are the only drivers of such behavior problems.

Third, a potential limitation regarding the issue of study quality is the possibility that the 50/50 split used may have reduced the variance between the two groups, which could have contributed to the lack of significant differences. Finally, though much care was taken to ensure consistency between coders during the extraction/coding, not all relevant information allowing the calculation of the kappa coefficient was collected during the extraction/coding. Hence, inter-rater reliability scores were not computed.

Future Directions

The results of the current study also point to directions for future research. Future research could take the effect size data a step further by evaluating if/how effect sizes are different for earlier samples vs. later samples as well as how effect size changes over time. The majority of the data on behavior problems was provided through parent report, most of whom were mothers. In order to better triangulate future data, research should include multiple informants such as teachers, both parents (where available), the children

themselves (if old enough to self-report), and other relevant individuals with exposure to the behavior of the children.

This study was not able to consider many and specific factors unique to private adoptions, public adoptions, and the many countries from which children are adopted. Private and public adoptees were combined in this analysis because few of the studies differentiated between the two subgroups. Similarly, international adoptees were also lumped together for the analyses. Future research should investigate the unique factors presented by private adoptions, public adoptions, and the numerous countries throughout the world processing international adoptions.

In addition, several studies were identified that would have met the study inclusion criteria had the statistics needed to calculate effect size been reported by the researchers. To increase the utility of published works in contributing to future meta-analyses, researchers should make it standard to include statistical information needed to calculate effect sizes by including means, standard deviations, and number of respondents.

Finally, research should also focus on leveraging the results of this study into solutions that help adoptees avoid and overcome behavior problems. Most of the existing research is focused on the prevalence of these issues, and why adoptees experience behavior problems. Now that much of the “what” and “why” of adoptee behavior problems are established, it will be important to focus on prevention and interventions that can help adoptees and their families.

Conclusions

Utilizing a recent, US only adoptee sample, this study confirms previous research that adoptees are at increased risk for behavior problems compared to their non-adopted peers. Both domestic and international adoptees were shown to have more total, internalizing, and externalizing behavior problems than non-adopted controls. However, the effect sizes were all small to moderate. In addition, adoptees younger than 12 years of age at the time of assessment show more total and externalizing behavior problems than adoptees older than 12 years of age at the time of assessment. Adoptees who lived with their adoptive families for 12 years or more show more total behavior problems than adoptees who lived with their adoptive families for fewer than 12 years. Male domestic adoptees are also more likely to have externalizing behavior problems than female domestic adoptees. These results should inform future research to focus on leveraging these results into practical help for adoptees and their families. In addition, the results should inform how adoption agencies and social service workers help prepare adoptive parents for their roles in helping their adopted children. Specifically, education should continue to be provided regarding the potential risk for adoptees to experience behavior problems. However, caution should be taken to ensure that social service workers and adoptive parents recognize that increased risk does not equal actual increased behavioral problems for all adopted children. In addition, there may be things parents can do to help adoptees overcome the behavior problems such as developing healthy attachment bonds with their adoptive children.

References

References marked with an asterisk indicate studies included in the meta-analysis.

- Alexander, C. J. (2006). Anger and control issues: Using empathy to reduce anger helps parent and child. In MacLeod, J. & Macrae, S. (Eds.), *Adoption parenting: Creating a toolbox, building connections* (pp. 146-148). Warren, NJ: EMK Press.
- Baden, A. L. (2007). Identity, psychological adjustment, culture, and race: Issues for transracial adoptees and the cultural-racial identity model. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 359-378). Thousand Oaks, CA: Sage Publications.
- Baden, A. L. (2007). Putting culture into context: The impact of attitudes toward the adoption of Chinese adoptees. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 117-132). Thousand Oaks, CA: Sage Publications.
- Baden, A. L., & Steward, R. J. (2007). The cultural-racial identity model: A theoretical framework for studying transracial adoptees. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 90-112). Thousand Oaks, CA: Sage Publications.
- *Baker, M. E. (1995). The psychological functioning of institutionalized minority children. (Unpublished doctoral dissertation). University of North Carolina-Chapel Hill, 1995.

- Barth, R. P., Crea, T. M., John, K., Thorburn, J., & Quinton, D. (2005). Beyond attachment theory and therapy: Towards sensitive and evidence-based interventions with foster and adoptive families in distress. *Child and Family Social Work, 10*, 257–268.
- Bethany Christian Services, (2011). Financing adoption. Retrieved August 31, 2011 from <http://www.bethany.org/>
- Biafora, F. A., & Esposito, D. (2007). Adoption data and statistical trends. In *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 32-43). Thousand Oaks, CA: Sage Publications.
- Bimmel, N., Juffer, F., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2003). Problem behavior of internationally adopted adolescents: A review and meta-analysis. *Harvard Review of Psychiatry, 11*(2), 64-77.
- Borenstein M, Hedges L, Higgins J, Rothstein H. (2005). *Comprehensive Meta-analysis* (2nd version), Biostat, Englewood NJ.
- *Borders, L. D., Black, L. K., & Pasley, B. K. (1998). Are adopted children and their parents at greater risk for negative outcomes? *Family Relations, 47*(3), 237-241.
- *Borders, L. D., Penny, J. M., & Portnoy, F. (2000). Adult adoptees and their friends: Current functioning and psychosocial well-being. *Family Relations, 49*(4), 407-418.
- Brand, A. E., & Brinich, P. A. (1999). Behavior problems and mental health contacts in adopted, foster, and nonadopted children. *Journal of Child Psychology and Psychiatry, 40* (8), pp. 1221-1229.

Cedarblad, M., Høeoeck, B., Irhammar, M., & Mercke, A. M. (1999). Mental health in international adoptees as teenagers and young adults: an epidemiological study.

Journal of Child Psychology and Psychiatry, 40, 1239-1248.

*Cermak, S. A., & Daunhauer, L. A. (1997). Sensory processing in the

postinstitutionalized child. *The American Journal of Occupational Therapy*, 57(7), 500-507.

Child Welfare League of America. (2003). International adoption: Trends and issues. In

In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 32-43). Thousand Oaks, CA: Sage Publications.

*Corbett, D. (2008). The impact of postadoption parenting characteristics on the

relationship between cognitive functioning and problem behavior in internationally adopted children. (Unpublished doctoral dissertation). University at Albany, State University of New York.

Data Resource Center for Child and Adolescent Health (2007). *National survey of*

children's health. Retrieved August, 31, 2011, from <http://childhealthdata.org>

*Deater-Deckard, K., & Plomin, R. (1999). An adoption study of etiology of teacher and

parent reports of externalizing behavior problems in middle childhood. *Child Development*, 70(1), 144-145.

*Dedrick, R. F., Tan, T. X., & Marfo, K. (2008). Factor structure of the child behavior

checklist/6-18 in a sample of girls adopted from China. *Psychological Assessment*, 20(1), 70-75.

- *Easterbrook, P. L. (2007). Self-appraisal and behavioral adaptation of adopted and nonadopted children. (Unpublished doctoral dissertation). University of North Carolina-Chapel Hill, North Carolina.
- Ernst, J. L. (2000). Genetic and environmental influences of maternal psychosocial and antisocial tendencies on the development, stability, and continuity of problem behaviors in adoptees from the Texas Adoption Project: A life course investigation of risk, resilience, and vulnerability. (Unpublished doctoral dissertation). University of Texas at Austin, Texas.
- Eposito, D., & Biafora, F. A. (2007). Toward sociology of adoption: Historical deconstruction. In In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 474-490). Thousand Oaks, CA: Sage Publications.
- Fagot, B. L., & Leve, L. D. (1998). Teacher ratings of externalizing behavior at school entry for boys and girls: Similar early predictors and different correlates. *Journal of Child Psychology and Psychiatry*, 39(4), 555-566.
- *Fan, X, X (2002). Questionnaire and interview inconsistencies exaggerated differences between adopted and non-adopted adolescents in a national sample. *Adoption Quarterly*, 6(2), 7-27.
- *Feigelman, W. (2001). Comparing adolescents in diverging family structures: Investigating whether adoptees are more prone to problems than their nonadopted peers. *Adoption Quarterly*, 5(2), 5-37.
- *Feigelman, W. (1997). Adopted adults: Comparisons with persons raised in conventional families. *Marriage & Family Review*, 25(3), 199-223.

- Fisher, A. P. (2003). Still “not quite as good as having your own”? Toward a sociology of adoption. *Annual Review of Sociology*, 29, 335-361.
- Freundlich, M. (2007). Research contributions: Strengthening services for members of the adoption triad. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 327-347). Thousand Oaks, CA: Sage Publications.
- Friedlander, M. L. (1999). Ethnic identity development of internationally adopted children and adolescents: Implications for family therapists. *Journal of Marital and Family Therapy*, 25(1), 43-60.
- Gake, T. L. (2002). Word power. *Family Therapy Magazine*, 3(3), 26-27.
- Gervais, J., Tremblay, R. E., Desmarais-Gervais, L., & Vitaro, F. (2000) Children's persistent lying, gender differences, and disruptive behaviours: A longitudinal perspective. *International Journal of Behavioral Development*, 24(2), 213-221.
- Goldney, R. D., Donald, M., Sawyer, M. G., & Kosky, R. J. (1996). Emotional health of Indonesian adoptees living in Australian families. *Australian and New Zealand Journal of Psychiatry*, 30(4), 534-539.
- Gorman, P. (2002). Resisting the deficit view of adoption. *Family Therapy Magazine*, 3(3), 22-25.
- Greene, S., Kelly, R., Nixon, E., Kelly, G., Borska, Z., Murphy, S., & Daly, A. (2008). Children's recovery after early adversity: Lessons from intercountry adoption. *Child Care in Practice*, 14(1), 75-81.

- Groza, V., Ryan, S. D., & Cash, S. J. (2003) Institutionalization, behavior and international adoption: Predictors of behavior problems. *Journal of Immigrant Health, 5*(1), 5-17.
- Hawk, B., & McCall, R. B. (2010). CBCL behavior problems of post-institutionalized international adoptees. *Clinical Child and Family Psychology Review, 13*, 199–211.
- Hoksbergen, R., & Laak, J. T. (2007). Psychic homeless related to reactive attachment disorder: Dutch adult foreign adoptees struggling with their identity. *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 474-490). Thousand Oaks, CA: Sage Publications.
- *Hoopes, J. L., Alexander, L. B., Silver, P., Ober, G., & Kirby, N. (1997). Formal adoption of the developmentally vulnerable African-American child. *Marriage & Family Review, 25*(3), 131-144.
- Hoshmand, L. T., Gere, S., Wong, Y. (2006). International adoption and the case of china: Implications of policy, theory, and research for psychoeducation and counseling. *Asian Journal of Counseling, 13*(1), 5-50.
- *Howard, J. A., Smith, S. L., Ryan, S. D. (2004). A comparative study of child welfare adoptions with other types of adopted children and birth children. *Adoption Quarterly, 7*(3), 1-30.
- Hughes, D. (2006). Creating PLACE. In MacLeod, J. & Macrae, S. (2006). *Adoption parenting: Creating a toolbox, building connections* (pp. 57-61). Warren, NJ: EMK Press.

- Irhammar, M. & Cedarblad, M. (2000). Outcome of intercountry adoption in Sweden. In P. Selman (Ed), *Intercountry adoption: Developments, trends, and perspectives* (pp. 132-146). London British Agencies for Adoption and Fostering.
- Johnston, P. I. (2004) Speaking positively: Using respectful adoption language. Retrieved June 22, 2009 from <http://www.perspectivepress.com>
- *Judge, S. (2003). Determinants of parental stress in families adopting children from Eastern Europe. *Family Relations*, 52(3), 241-248.
- Juffer, F., & van IJzendoorn, M. H. (2005). Behavior problems and mental health referrals of international adoptees: A meta-analysis. *Journal of the American Medical Association*, 293(20), 2501-2515.
- *Kaldec, M. B., & Cermak, S. A. (2002). Activity level, organization, and social-emotional behaviors in post-institutionalized children. *Adoption Quarterly*, 6(2), 43-57.
- *Kim, W. J., Shin, Y., Carey, M. P. (1999). Comparison of Korean-American adoptees and biological children of their adoptive parents: A pilot study. *Child Psychiatry and Human Development*, 29(3), 221-228.
- Kurckinka, M. S. (1998). *Raising your spirited child workbook*. New York: HarperCollins Publishers.
- *Lansford, J. E., Ceballo, R., Abbey, A., & Stewart, A. J. (2001). Does family structure matter? A comparison of adoptive, two-parent biological, single-mother, stepfather, and stepmother households. *Journal of Marriage and Family*, 63(3), 840-851.

- Leveille, S., & Chamberland, C. (2010). Toward a general model for child welfare and protection services: A meta-evaluation of international experiences regarding the adoption of the Framework for the Assessment of Children in Need and Their Families (FACNF). *Children and Youth Services Review*, 32, 929-944.
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage Publications.
- MacLeod, J. (2006). Directions not included. In MacLeod, J. & Macrae, S. (2006). *Adoption parenting: Creating a toolbox, building connections* (pp. 432-435). Warren, NJ: EMK Press.
- MacLeod, J. & Macrae, S. (2006). *Adoption parenting: Creating a toolbox, building connections*. Warren, NJ: EMK Press.
- Marcovitch, S., Goldberg, S., Gold, A., & Washington, J. (1997). Determinants of behavioural problems in Romanian children adopted in Ontario. *International Journal of Behavioral Development*, 20, 17-31.
- McGinn, M. F. (2007). Developmental challenges for adoptees across the life cycle. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 61-76). Thousand Oaks, CA: Sage Publications.
- Mertz, E. C., & McCall, R. B. (2010). Behavior problems in children adopted from psychosocially depriving institutions. *Journal of Abnormal Child Psychology* 38, 459-470.

- Miller, B. C., Fan, X., Christensen, M., Grotevant, H. D., & van Dulmen, M. (2000). Comparisons of adopted and nonadopted adolescents in a large, nationally representative sample. *Child Development, 71*(5), 1458-1473.
- Miller, L. C. (2005). International adoption, behavior, and mental health. *Journal of the American Medical Association, 293*(20), 2533-2535.
- Mohanty, J. & Newhill, C. (2005). Adjustment of international adoptees: Implications for practice and a future research agenda. *Children and Youth Services Review, 28*(4), 384-395.
- Mullen, B. (1981). *Advanced basic meta-analysis*. Hillsdale, New Jersey: Laurence Erlbaum Associates, Publishers.
- National Adoption Clearinghouse. (2006). Tips on selecting and adoption therapist. In MacLeod, J. & Macrae, S. (2006). *Adoption parenting: Creating a toolbox, building connections* (pp. 436-440). Warren, NJ: EMK Press.
- *Norris, K. E. (2006). The development of neuropsychological functioning, social competence, and emotional behavioral regulation in adopted Chinese children. (Unpublished doctoral dissertation). DePaul University, Illinois.
- Paperny, R. (2004). Adoption and attachment: A study of attachment in young adult adoptees. (Doctoral dissertation, University of Calgary). *Dissertation Abstracts International: Section B: The Sciences and Engineering, 65*(1-B), 466.
- Pertman, A. (2000). *Adoption nation: How the adoption revolution is transforming America*. New York: Basic Books.
- *Pinderhuges, E. E. (1998). Short term placement outcomes for children adopted after age five. *Children and Youth Services Review, 20*(3), 223-249.

Plomin, R. & DeFries, J. C. (1985). *Origins of individual differences in infancy: The Colorado Adoption Project*. New York: Academic Press.

*Proctor, C. D. (2006). Behavioral indicators as attachment difficulties in children adopted from Romania. (Unpublished doctoral dissertation). Case Western Reserve University, Ohio.

Purvis, K. B., Cross, D. R., & Sunshine, W. L. (2007). *The connected child*. New York, NY: McGraw Hill.

*Rojewski, J. W. Shapiro, M. S., & Shapiro, M. (2000). Parental assessment of behavior in Chinese adoptees during early childhood. *Child Psychiatry and Human Development, 31*(1), 79-96.

Sass, D. A., & Henderson, D. B. (2007). Psychologists' self-reported adoption knowledge and the need for more adoption education. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 312-322). Thousand Oaks, CA: Sage Publications.

Schooler, J. E., & Atwood, T. C. (2008). *The whole life adoption book: Realistic advice for building a healthy adoptive family*. Colorado Springs, CO: NavPress.

Selman, P. (2006). Trends in intercountry adoption: Analysis of data from 20 receiving countries, 1998-2004. *Journal of Population Research, 23*(2), 183-204.

*Sharma, A. R., McGue, M. K., & Benson, P. L. (1998). The psychological adjustment of United States adopted adolescents and their nonadopted siblings. *Child Development, 69*, 791-802.

- *Sharma, A. R., McGue, M. K., & Benson, P. L. (1996). The emotional and behavioral adjustment of United States adopted adolescents: Part I. An overview. *Children and Youth Services Review, 18*(1/2), 83-100.
- Stams, G. J., Juffer, F., Rispen, J., & Hoksbergen, R. A. (2000). The development and adjustment of 7-year-old children adopted in infancy. *Journal of Child Psychological Psychiatry, 41*, 1025-1037.
- Stein, L. M., & Hoopes, J. L. (1985). *Identity formation in the adopted adolescent*. New York: Child Welfare League of America.
- *Stewart, S. D. (2010). The characteristics and well-being of adopted stepchildren. *Family Relations, 59*, 558-571.
- Stroup, D. F., Berlin, J. A., Morton, S. C., Olkin, I., Williamson, G. D., Rennie, D., Moher, D., Becker, B. J., Sipe, T. A., Thacker, S. B. (2000). Meta-analysis of observational studies in epidemiology. *Journal of the American Medical Association, 283*(15), 2008-2012.
- *Tan, X. T. (2004). Child adjustment of single-parent adoption from China: A comparative study. *Adoption Quarterly, 8*(1), 1-20.
- *Tan, X. T. & Marfo, K. (2006). Parental ratings of behavioral adjustment in two samples of adopted Chinese girls: Age-related versus socio-emotional correlates and predictors. *Applied Developmental Psychology, 27*, 14-30.
- The Evan B. Donaldson Adoption Institute. (2011). Retrieved from <http://www.adoptioninstitute.org/FactOverview/domestic.html#4>

- Thompson, L. A., & Plomin, R. (1988). The sequenced inventory of communication development: An adoption study of two- and three-year-olds. *International Journal of Behavioral Development, 11*, 219-231.
- *Tully, E. C., Iacono, W. G., & McGue, M. (2008). An adoption study of parental depression as an environmental liability for adolescent depression and childhood disruptive disorders. *American Journal of Psychiatry, 165*(9), 1148-1154.
- U.S. Department of Health and Human Services. (2004). *How many children were adopted in 2000 and 2001?* Washington, DC: National Adoption Information Clearinghouse.
- U.S. Department of the State. (2011). *Country information*. Retrieved from http://adoption.state.gov/news/total_chart.html
- U.S. Department of the State. (2005). Immigrant visas to orphans coming to the U.S.: Top countries of origin. In Javier, R. A., Baden, A. L., Biafora, F. A., & Camacho-Gingerich, A. (Eds.), *Handbook of adoption: Implications for researchers, practitioners, and families* (pp. 32-43). Thousand Oaks, CA: Sage Publications.
- Verhulst, F. (2008). International adoption and mental health: Long-term behavioral outcome. In Garralda, M. E., & Raynaud, J. P. (Eds), *Culture and conflict in child and adolescent mental health* (pp. 83-105). Latham, MD: Jason Aronson Publishers.
- Verhulst, F. C., Althaus, M., & Versluis-den Bieman, H. J. (1990). Problem behavior in international adoptees, 1: An epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 94-103.

- Wampler, K. S., Reifman, A., & Serovich, J. M. (2005). Meta-analysis in family therapy research. In Sprenkle, D. H., & Piercy, F. P. (Eds), *Research methods in family therapy* (pp. 318-338).
- *Weiberg, R. A., Waldman, I., van dulmen, M. H. M., & Scarr, S. (2004). The Minnesota transracial adoption study: Parent reports of psychosocial adjustment at late adolescence. *Adoption Quarterly*, 8(2), 27-44.
- White, B. L. (1995). *The new first three years of life*. New York: Fireside.
- Wide Horizons for Children. (2009). Retrieved June 22, 2009, from <http://www.whfc.org>
- *Wiik, K. L., Loman, M. M., Van Ryzin, M. J., Armstrong, J. M., Essex, M. J., Pollak, S. D., & Gunnar, M. R. (2011). Behavioral and emotional symptoms of post-institutionalized children in middle childhood. *Journal of Child Psychology and Psychiatry*, 52(1), 56-63.

Appendix A: Letter to Authors

Jonathan Swinton, MS, MedFT, LMFT
 PhD Candidate, Kansas State University
 Swinton@ksu.edu
 (801) 647-9951
 Fax: (801) 657-5312

[Date]

[Author's name and address]

Dear [author's name],

I am presently conducting a meta-analysis that will investigate if adoptees (domestic and international) adopted in the United States are at a greater risk of experiencing behavior problems than non-adoptees. I am writing in reference to your publication:

[Article Citation]

I think that your research would be important to include in the meta-analysis. However, the way in which the results of the study were presented does not allow me to use all of the data needed for the meta-analysis specifically the statistics relating to the following factor(s):

[Variable missing data—worded in the language used by the author]

If you still have access to the data and if you would like to have the study included, I politely request that you please send me the necessary statistics related to the variable(s) mentioned above. Any of the following types of statistics that are usable would also be appreciated. I will be using Cohen *d* to compare behavior problems of adoptees vs. non-adopted controls. The data I need includes: Overall, internalizing, and/or externalizing behavior means, standard deviations, and effect size scores for international cases and controls, and domestic cases and controls. If you have that data for male and female specific subsamples, I would appreciate those scores as well.

Thank you for taking the time to help in this matter and for the contribution of your research to the body of knowledge in the area of child maltreatment. If you have any questions please contact me by letter, email, or telephone. If there is someone else whom I should contact for this information, I would greatly appreciate his or her contact information if you can provide it.

Sincerely,

Jonathan Swinton, MS, MedFT, LMFT
 PhD Candidate

Appendix B: Extraction and Coding Manual

This manual provides instructions on the extraction and coding procedures. Do not start the extraction and coding until you have been trained by the primary investigator. In addition, before starting the coding process, all coders will code 2 studies together to ensure adequate training and consistency in the extraction and coding process. If you have any questions or are unsure about procedures at any stage of the extraction/coding process, please contact the primary investigator: Jonathan Swinton, 801.647.9951, swinton@ksu.edu. Once you have completed the extraction and coding, please give information directly to the primary investigator.

Complete an extraction/coding sheet for each study. If studies contain pre-tests and post-tests, use behavior problem data from pre-tests. If studies were longitudinal studies, use data from the earliest data set. If studies use more than one behavior assessment, the assessment that has established reliability and validity will be used. If the multiple behavior assessments have established reliability and validity, select the assessment that most closely aligns with the overall, externalizing, and/or internalizing behavior problem constructs. Many of the questions include space to record page number(s). Record the page number(s) where the information was found in the study. If data is not available for any questions, leave blank. If you are uncertain about what to put, counsel with the other coders. If consensus is not reached, one of the major professors supervising this study will be sought out for assistance in coming to a decision.

Bibliographic reference: write the citation for the study in APA format.

Descriptive Data

1. Study ID: Record the unique study ID number recorded on the top of the front page of the study. Each article has a unique study ID number.
2. Coder ID: Record the unique ID number for the coder.
3. Date Coded (mm/dd/yy): Record the date the data was extracted/coded.
4. Year of publication: Record the year the study was published (for peer-reviewed publications), or presented to the University (for dissertations).
5. Was the study included in the Juffer and van IJzendoorn (2005) study: Select the code regarding if the study was used in the Juffer and van IJzendoorn study (2005) or not.
 - (1) Yes
 - (2) No
6. Case N: Record the number of cases for each category. If data is not available for category, leave blank.
 - International adoptee case sample
 - International male adoptee case sample
 - International female adoptee case sample
 - Domestic adoptee case sample
 - Domestic male adoptee case sample
 - Domestic female adoptee case sample
 - Total case sample
7. Control N: Record the number of controls for each category. If data is not available for category, leave blank. If clinical norms for the diagnostic tool were used for the control group, record the information provided regarding norm sample size, if available.

International adoptee control sample

International male adoptee control sample

International female adoptee control sample

Domestic adoptee control sample

Domestic male adoptee control sample

Domestic female adoptee control sample

Total control sample

Study Quality

8. Subjective rating of the study: Record your subjective rating of the quality of the study. Based on your experience reading articles, your training in research methods, and conducting research, how would you rate the quality of the research result reported in this study?

(0) Poor

(0.25) Below average

(0.5) Average

(0.75) Above average

(1) Excellent

9. Total sample size: Record the total sample size of the case group used in the study.

(0) Less than 50

(0.25) 51 to 100

(0.5) 101 to 500

(0.75) 501 to 1000

(1) Greater than 1000

10. Did the instrument measuring the behavior problem data have established validity and reliability? Record "Yes" or "No".

(1) Yes

(0) No

11. What type of publication outlet was utilized for the study? Record the relevant code.

(1) Peer-reviewed journal

(0) Other (e.g. dissertation, book chapter, etc.)

12. Did the researcher discuss limitations of the study? Record the relevant code.

(1) Yes

(0) No

13. Overall study quality score: Add the coded responses for questions 8-12 and divide by 5.

Case Moderator Data

This section will only include data from case samples.

14. Pre-adoptive adversity: Select the code that best describes the sample or sub-sample listed below that was used in the study. Record "yes" if at least 50% of the sample experienced extreme deprivation. Extreme deprivation includes: serious neglect, institutionalization for longer than 1 month, malnutrition, and/or abuse. If it is not clear if there was pre-adoptive adversity or not, leave blank.

Codes:

(1) Yes

(2) No

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

Age at time of assessment:

15. Mean: Record the mean age (in months) of the adoptee samples (listed below) at the time of the assessment.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

16. Standard deviation: Record the standard deviation scores for the age of the adoptee samples (listed below) at the time of the assessment.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

17. Range: Record the age range of adoptee samples (listed below) at the time of assessment.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

18. Coded assessment age: Based on the mean, standard deviation, and/or the range of age at time of assessment, indicate the age at time of placement code that is best represented by the samples (listed below).

(1) 0 to 12 years

(2) More than 12 years

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

Age when placed for adoption:

19. Mean: Record the mean age of the adoptee samples (listed below) when the adoptees were placed for adoption (in months).

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

20. Standard deviation: Record the standard deviation score for the adoptee samples (listed below) age when the adoptees were placed for adoption.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

21. Range: Record the age range of adoptee samples (listed below) at the time of placement.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

22. Coded age when placed for adoption: Based on the mean, standard deviation, and/or the range of age when placed for adoption, record the age when placed for adoption code that is best represented by the samples (listed below).

Codes:

(1) 0 to 12 months

(2) 12 to 24 months

(3) older than 24 months

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

Duration of time with adoptive family:

23. Mean: Record the mean duration of time the adoptee samples (listed below) have spent with their adoptive families (in months).

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

24. Standard deviation: Record the standard deviation scores for the duration of time the adoptee samples (listed below) have been in their adoptive families.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

25. Range: Record the range of time adoptee samples (listed below) have been with their adoptive families.

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

26. Coded duration of time with adoptive family: Based on the mean, standard deviation, and/or the range duration of time with adoptive family, indicate the duration of time with adoptive family code that is best represented by the sample.

Codes:

(1) 0 to 12 years

(2) More than 12 years

Samples:

International adoptee case sample

International male adoptee case sample

International female adoptee case sample

Domestic adoptee case sample

Domestic male adoptee case sample

Domestic female adoptee case sample

27. Clinical vs. non-clinical sample: If available, record whether the sample was derived in clinical or non-clinical settings.

Codes:

(1) Clinical Sample

(2) Other Sample (non-clinical)

Add info here about clinical vs non clinical

Effect Size Data

28. Type of diagnostic tool: Record the type of diagnostic tool was used to determine the behavior scores. If the study contains more than one behavior diagnostic tool, select the

one that has been tested for validity and reliability. If both report good validity and reliability, select the toll that most closely aligns with the constructs of overall, internalizing, and/or externalizing behavior issues.

- (1) Child Behavior Checklist (CBCL)
- (2) Behavior Problem Index (BPI)
- (3) Risk Prediction Scales (RPS)
- (4) Center for Epidemiologic Studies Depression Scale (CESD)
- (5) Developmental & Sensory Processing Questionnaire (DSPQ)
- (6) Temperament and Atypical Behavior Scale (TABS)
- (7) Behavior Assessment System for Children (BASC)
- (8) Child Behavioral and Emotion Problem Scale (CBEPS)
- (9) Youth Self Report (YSR)
- (10) Interview (INT)
- (11) Other Survey (SURVEY) _____ (Write in the name of survey used)

Behavior Scores:

Behavior scores reported for the behavior diagnostic tool should be recorded below. If controls were not used in the study, but norms from the diagnostic tool were used as the control group, record norm scores. Overall behavior case sample scores should be reported if the study reports scores as the overall behavior scores, or some other general representation. If the study does not specify, it should be recorded as an overall behavior score unless the scores clearly fit in the sub-categories of externalizing (e.g. aggression, delinquency, or hyperactivity), or internalizing (withdrawn, anxious, or depressed). If the

study reports externalizing or internalizing scores, those should be recorded in the appropriate sections below.

29. Mean: Record the value for the behavior problem means, if available in the following samples:

Overall Behavior Case Sample

- International sample
- International male sample
- International female sample
- Domestic sample
- Domestic male sample
- Domestic female sample

Overall Behavior Control Sample

- International sample
- International male sample
- International female sample
- Domestic sample
- Domestic male sample
- Domestic female sample

Externalizing Behavior Case Sample

- International sample
- International male sample
- International female sample
- Domestic sample

Domestic male sample

Domestic female sample

Externalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Case Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

30. Case group standard deviation: Record the value for the standard deviations, if available for the following samples:

Overall Behavior Case Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample
Domestic female sample

Overall Behavior Control Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample
Domestic female sample

Externalizing Behavior Case Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample
Domestic female sample

Externalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Case Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

31. Case group significance score: Record the value for any significance score reported, if available for the samples listed below. Also record what type of score it is (e.g. t-value, f-value, etc).

Overall Behavior Case Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample
Domestic female sample

Overall Behavior Control Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample
Domestic female sample

Externalizing Behavior Case Sample

International sample
International male sample
International female sample
Domestic sample
Domestic male sample

Domestic female sample

Externalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Case Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

Internalizing Behavior Control Sample

International sample

International male sample

International female sample

Domestic sample

Domestic male sample

Domestic female sample

EXTRACTION/CODING SHEET

Bibliographic reference _____

Descriptive Data

1. Study ID: _____
2. Coder ID: _____
3. Date Coded (mm/dd/yy): _____
4. Year of study publication: _____
5. Was the study included in the Juffer & van IJzendoorn study: _____
 (1) Yes
 (2) No

6. Case N:

International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Total case sample _____
 Page number(s) _____

7. Control N:

International adoptee control sample _____
 International male adoptee control sample _____
 International female adoptee control sample _____
 Domestic adoptee control sample _____
 Domestic male adoptee control sample _____
 Domestic female adoptee control sample _____
 Total control sample _____
 Page number(s) _____

Study Quality

8. What was your subjective rating of this study? _____
 (0) Poor
 (0.25) Below average
 (0.5) Average

- (0.75) Above average
 (1) Excellent

9. Total sample size: _____

- (0) Less than 50
 (0.25) 51 to 100
 (0.5) 101 to 500
 (0.75) 501 to 1000
 (1) Greater than 1000
 Page number(s) _____

10. Did the behavior diagnostic tool have established validity and reliability? _____

- (1) Yes
 (0) No
 Page number(s) _____

11. What type of publication outlet was utilized for the study? _____

- (1) Peer-reviewed journal
 (0) Other (e.g. dissertation, book chapter, etc.)

12. Did the researcher discuss limitations of the study? _____

- (1) Yes
 (0) No
 Page number(s) _____

13. Overall study quality score: _____

Case Moderator Data

14. Pre-adoptive adversity:

- (1) Yes
 (2) No
 International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

Age at time of assessment:

15. Mean:

- International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____

Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

16. Standard deviation:

International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

17. Range:

International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

18. Coded assessment age:

(1) Between 0 and 12 years
 (2) More than 12 years
 International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

Age when placed for adoption:

19. Mean:

International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

20. Standard deviation:

International adoptee case sample _____
 International male adoptee case sample _____

International female adoptee case sample _____

Domestic adoptee case sample _____

Domestic male adoptee case sample _____

Domestic female adoptee case sample _____

Page number(s) _____

21. Range:

International adoptee case sample _____

International male adoptee case sample _____

International female adoptee case sample _____

Domestic adoptee case sample _____

Domestic male adoptee case sample _____

Domestic female adoptee case sample _____

Page number(s) _____

22. Coded age when placed for adoption:

(1) 0 and 12 months

(2) 12 and 24 months

(3) older than 24 months

International adoptee case sample _____

International male adoptee case sample _____

International female adoptee case sample _____

Domestic adoptee case sample _____

Domestic male adoptee case sample _____

Domestic female adoptee case sample _____

Duration of time with adoptive family:

23. Mean:

International adoptee case sample _____

International male adoptee case sample _____

International female adoptee case sample _____

Domestic adoptee case sample _____

Domestic male adoptee case sample _____

Domestic female adoptee case sample _____

Page number(s) _____

24. Standard deviation:

International adoptee case sample _____

International male adoptee case sample _____

International female adoptee case sample _____

Domestic adoptee case sample _____

Domestic male adoptee case sample _____

Domestic female adoptee case sample _____

Page number(s) _____

25. Range:

International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____
 Page number(s) _____

26. Coded duration of time with adoptive family:

(1) 0 to 12 years
 (2) More than 12 years
 International adoptee case sample _____
 International male adoptee case sample _____
 International female adoptee case sample _____
 Domestic adoptee case sample _____
 Domestic male adoptee case sample _____
 Domestic female adoptee case sample _____

27. Clinical vs. non-clinical sample: _____

Type of sample
 Clinical Sample (ie. collected from samples in clinical settings)
 Other sample (non-clinical)

Effect Size Data**28. Behavior diagnostic tool used in study:** _____

(1) Child Behavior Checklist (CBCL)
 (2) Behavior Problem Index (BPI)
 (3) Risk Prediction Scales (RPS)
 (4) Center for Epidemiologic Studies Depression Scale (CESD)
 (5) Developmental & Sensory Processing Questionnaire (DSPQ)
 (6) Temperament and Atypical Behavior Scale (TABS)
 (7) Behavior Assessment System for Children (BASC)
 (8) Child Behavioral and Emotion Problem Scale (CBEPS)
 (9) Youth Self Report (YSR)
 (10) Interview (INT)
 (11) Other Survey (SURVEY) _____
 Page number(s) _____

Behavior Scores:**29. Mean:****Overall Behavior Case Sample**

International sample _____
 International male sample _____
 International female sample _____

Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Overall Behavior Control Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Externalizing Behavior Case Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Externalizing Behavior Control Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Internalizing Behavior Case Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Internalizing Behavior Control Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____

Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

30. Standard deviation:

Overall Behavior Case Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Overall Behavior Control Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Externalizing Behavior Case Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Externalizing Behavior Control Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Internalizing Behavior Case Sample

International sample _____
 International male sample _____
 International female sample _____

Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Internalizing Behavior Control Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

31. Significance scores:

Overall Behavior Case Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Overall Behavior Control Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Externalizing Behavior Case Sample

International sample _____
 International male sample _____
 International female sample _____
 Domestic sample _____
 Domestic male sample _____
 Domestic female sample _____
 Page number(s) _____

Externalizing Behavior Control Sample

International sample _____
 International male sample _____
 International female sample _____

Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Internalizing Behavior Case Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____

Internalizing Behavior Control Sample

International sample _____
International male sample _____
International female sample _____
Domestic sample _____
Domestic male sample _____
Domestic female sample _____
Page number(s) _____