

THE PENNSYLVANIA STATE UNIVERSITY  
SCHREYER HONORS COLLEGE

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

BIRTH MOTHER ANTISOCIAL BEHAVIOR AND CHILD SOCIAL COMPETENCE AS  
MODERATED BY ADOPTIVE PARENT-CHILD RELATIONSHIP QUALITY

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## ABSTRACT

The current study utilized a longitudinal parent-offspring adoption design examining the effect of birth mother antisocial behavior on child social competence as moderated by the adoptive-parent child relationship. Birth mothers were assessed when the child was 18 months of age, and both the adoptive mother-child and adoptive father-child relationships as well as child social competence were assessed when the child was 27 months of age. Regression analyses indicated that birth mother antisocial behavior did not predict child social competence; therefore the adoptive parent-child relationship did not moderate this relationship. However, conflict and closeness within the adoptive mother-child relationship did significantly predict child social competence, as did closeness within the adoptive father-child relationship. Conflict within the adoptive father-child relationship was not predictive of child social competence.

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## **Chapter 1**

### **Introduction**

Child social competence, defined as (or characterized by) one's functioning in relation to others and the ability to form close relationships, has been shown to have significant effects on child conduct problems and internalizing and externalizing behaviors, all of which have been shown to be influenced by parenting practices and relationships as well (Burt, Obradovic, Long, & Masten, 2008; Brotman, Gouley, Chesir-Teran, Dennis, & Klein, 2005). Various studies have examined the association between child social competence and aggressive behaviors among children. Though this link has been established in as early as preschool age children, the impact of further genetic risk of antisocial behavior on children's social competence when reared in non-biological homes has not yet been as extensively studied.

In biological families, the association between parents and children can be attributed to both rearing environments and shared genetic influences, while shared genetic influences can also influence child-rearing environments. Most studies examining parenting practices and parent-child relationships on child social competence occur within biological families, which makes it impossible to disentangle genetic and environmental influences on child social competence development. The current study addresses this gap by using a sample of adopted children, their adoptive parents, and their birth mothers to explore the genetic risk of birth mother antisocial behavior on adopted child social competence as moderated by the adoptive parent-child relationship.

Birth mother antisocial behavior has been found to be predictive of both internalizing and externalizing behaviors in adopted children as early as 18 months old (Kerr et al., 2013), which is striking given that these children were reared by genetically unrelated parents, showing that this association must be attributed to genetic influences. However, research has also found that the impact of genetic risk is

dependent on children's environmental factors and family relationships (via gene x environment interaction). Therefore, in order to create methods and implement prevention programs that negate the genetic risk of antisocial behavior on child social competence early on and thus the high risk of aggressive, internalizing, and externalizing behaviors and conduct problems, it is warranted to explore genetic risk and family relationships as a potential moderator using a pre-preschool age adoptive sample.

### **Birth Mother Antisocial Behaviors and Child Social Competence**

There are a number of studies that have found that genetic influences significantly contribute to antisocial behavior problems across childhood, even when children are reared apart from their birth mothers exhibiting such behaviors (Mason and Frick, 1994). In a meta-analysis of twin and adoption studies, approximately 50% of the variance in antisocial behavior measures were attributed to genetic effects, increasing in magnitude of effect when behaviors were more prevalent and severe (Mason and Frick, 1994). Grove et al. (1990) found similar results of significant heritability of antisocial behavior on adopted children in a study of monozygotic twins ages 16-68 reared apart.

Because of such significant heritability, identifying the impact of genetic risk on the development of child antisocial behaviors and the result on child social competency early on is important for the implementation of prevention practices. Otherwise, such behaviors can be known to endure and evolve through adolescence, where severe consequences and problems may arise. For example, persistent antisocial behaviors and conduct problems have been linked with lower academic performance, IQ, substance abuse, and more pathological personality characteristics (Elkins, Iacono, Doyle, McGue, 1977). Adalbjarnardottir and Rafnsso (2002) also examined the consequences of early emerging and persistent antisocial behavior in a longitudinal study and found that daily smoking, alcohol and drug use drastically increased by age 17. Given that poorer outcomes are associated with long-term antisocial behaviors and low levels of social competence, it is important to examine the likelihood of the development of such behaviors at an early age as well as the ways adoptive parents might moderate the potential effects of

genetic risk.

In the current study, preschool aged children's social competence is assessed rather than child antisocial behaviors in association with birth mother antisocial behavior, as at such a young age the precursors to conduct problems, aggressive behaviors, and, most importantly, antisocial behaviors can often be found in child social competence levels. In fact, experimental prevention programs of antisocial behavior often target social competence and have shown significant progress. For example, an antisocial behavior prevention plan was implemented on four-year-old children throughout their first year of preschool, heightening social competence through modules on rule-following, emotions and feelings, communication skills, etc., which resulted in significant reduction of antisocial behaviors and improved social competence (Benitez, Fernandez, Justicia, Fernandez, Justicia, 2011).

Furthermore, the majority of studies on the development of antisocial behaviors and its mediators fall within the realm of adolescence, when antisocial behavior is often already fully present, rather than utilizing a more proactive prevention approach by examining children at a much younger age. In this way, prevention methods may be implemented earlier and risks negated before more negative, long-term outcomes occur and persist.

### **Adoptive Parent-Child Relationship Quality**

Within a child's family relationships, birth and adoptive parents alike who exhibit warm, positive parenting styles and practices are linked with positive child outcomes. On the other hand, parents who are harsh and negative are more likely to have children with behavioral and emotional problems (Horwitz and Neiderhiser, 2011; Zhou et al., 2002). Moreover, reaching past this obvious association and into the context of the current study on child social development, research has shown a significant and direct relationship between parenting styles (authoritarian, authoritative, and permissive) and child social

competence (Xu, 2007). As expected, there is a strong positive relationship between the more warm and direct authoritative parenting style and better child social competence (Xu, 2007). In regards to the parent-child relationship specifically, maternal warmth in the mother-child relationship influenced and predicted better child social skills in a study of children ages 1 to 3 (Steelman, 2002); however, there is not nearly as much research on the father-child relationship as well. Given these various correlations and current gaps in this line of research, there is reason to believe that the parent-child relationship will have a significant impact on child social competence as well as the potential to moderate genetic influence and risk.

### **Adoptive Parent-Child Relationship as Moderator**

Child social competence is most likely the result of a combination of genetic influences and socialization within the family context. For example, Feinberg et al. (2007) found that both genetic and environmental influences, specifically parenting, were present in the development and analysis of child aggressive and non-aggressive antisocial behaviors. Furthermore, in a study on mother antisocial behaviors and child social competence, mothers with (high levels of) antisocial behaviors are more likely to exhibit negative parenting behaviors and have children with lower social competence (Rhule, McMahon, Spieker, 2004). Yet this still calls into question the impact of genetics versus the child's rearing environment in this context, supporting the current study use of an adopted sample.

These and other past studies have often more so focused on negative parenting practices and parenting as a whole rather than the parent-child relationship itself, such as in a study of a Head Start prevention program for 4-year-old children at risk for non-compliant and aggressive behaviors. Participating mothers who were included in prevention classes exhibited less negative and more positive parenting, resulting in significantly fewer child conduct problems (Webster-Stratton, Reid, & Hammond, 2001). Although parenting practices have an obvious effect on child outcomes and social competence, this as well as the previous research discussed warrants more exploration into whether or not the adoptive



parent-child relationship will serve as a moderator of genetic risk of birth mother antisocial behavior on child social competence, which would ultimately help in the creation of prevention programs in order to negate said risk and problem behaviors.

### **Hypothesis**

The work reviewed above helps to clarify the links between parent antisocial behavior symptoms and child social competence while highlighting the importance of parenting as a potential moderator of birth mother symptoms and child behavioral outcomes. The majority of this work has examined biological mothers rearing their biological child(ren). Genetically informed designs, including twin and parent-offspring adoption designs, have provided evidence of the importance of genetic influences on these links as well as clues about associations between parents and children that may be moderated by the parent-child relationship. This Honor's Thesis will examine the link between birth mother antisocial behavior symptoms and child social competence using a parent-offspring adoption design. The role of the parent-child relationship, for both adoptive mothers and adoptive fathers, will also be examined as a potential moderator of these links. There are three hypotheses that guide this work:

Hypothesis 1. Birth mother antisocial behavior will be negatively correlated with child social competence.

Hypothesis 2. Closeness in the adoptive parent-child relationship (signifying better relationship quality) with both adoptive mother and father will be positively correlated with child social competence.

Hypothesis 3. The adoptive parent-child relationship will moderate the association between birth mother antisocial behavior and adopted child social competence.

## Chapter 2

### Methods

#### Participants

The current study uses data from Cohort I of the Early Growth and Development study, a prospective, longitudinal, parent-offspring adoption study, including 359 adopted children, 359 sets of adoptive parents, and 359 birth mothers. This sample was recruited from 10 states in the Northwest, Southwest, and Mid-Atlantic regions of the United States, drawing from 33 public, private, religious, and secular adoption agencies, including both open and closed adoptions (Leve et al., 2007). More information on the demographics of participants can be found in Table 1.

The current investigation was based on 2 waves of data, assessing all parties when adopted children were 18 months and 27 months of age. 42% of adopted children in this study were female.

**Table 1: Demographics for Birth and Adoptive Parents**

Variable	Birth Mother	Adoptive Mother	Adoptive Father
Mean age (in years)	23.83	36.96	37.89
Race (%)			
Caucasian	78	91	90
African-American	10	5	6
Asian	2	1	1
Multi-ethnic	5	3	1
Other	5	0	2
Mean education level	5	9	9
Median annual income	< \$20K	\$100K +	\$100K +
Mean # individuals in home	3.6	3.7	3.6

#### Procedure

Birth mothers were administered one open-ended interview. Adopted children were also assessed at one time using a 49-item questionnaire filled out by both adoptive parents when children were 18 months of age. Adoptive parent-child relationship quality was assessed based on a 15-item questionnaire mailed to both adoptive mother and father, questioning their perceptions of conflict and closeness within their relationship with their adopted child.

### **Measures**

Birth mother antisocial behavior symptoms were assessed using the Diagnostic Interview Schedule (“DIS” or “C-DIS”) at 18 months postpartum. Questions included whether or not specific symptoms were met regarding DSM-IV definitions for both conduct and antisocial personality disorder. Specific items included “failure to conform to social norms with respect to lawful behaviors,” “deceitfulness,” and “irritability and aggressiveness.” A combined score for conduct disorder and antisocial personality disorder was used in the current report to create a more general construct of antisocial behavior symptoms in birth mothers.

Child social skills were assessed using the Social Skills Rating System (SSRS), which was developed from the Social Skills Rating System Manual by Gresham, Frank M., & Elliott, Stephen N., when the child was 27 months of age. This assessment includes items on externalizing and internalizing behaviors, hyperactivity, and controlling one’s temper.

Adoptive parent-child relationship quality was tested using the Adult-Child Relationship Questionnaire, which has been used in two previous studies by Pianta, R.C., & Steinberg, M. (1991) and Pianta, R.C. (1994), when the child was 27 months of age. This assessment was adapted from the Student-Teacher Relationship Scale which tests conflict and openness between adoptive parent and child, and as with the scale used, a higher total score signals better relationship quality, a higher closeness score signals more closeness, and a lower conflict score signals less conflict. Questions regarding closeness included “She/he is open with me about sharing feelings...” and “If upset, this child seeks comfort from

me.” Questions regarded conflict included “She/he and I always seem to be struggling with each other” and “She/he stays angry and resists me after being punished.”

### **Analysis Plan**

Regression analyses were performed to understand the association of birth mother antisocial behavior, closeness and conflict in the adoptive parent and child relationship, and the interaction between the two on adopted child social competence. These analyses were run a total of nine times in order to understand the affect of adoptive mother’s individual conflict and closeness in association with child social competence as well as mother’s individual conflict, closeness, and total relationship quality and father’s individual conflict, closeness, and total relationship quality with their adopted child. Lastly, conflict, closeness, and total relationship quality were tested with both mother and father combined. No control variables were used- instead, mother and father individual scores were compared to one another.

## Chapter 3

### Results

The results of the regression analyses performed can be found in Table 2 below. Surprisingly, birth mother antisocial behavior was non-predictive of child social skills, as was the interaction between said antisocial behavior and each aspect of adoptive parent-child relationship quality. However, we do see a significant association between adoptive mother-child closeness and child social skills ( $t(298) = -3.20$ ,  $p < .000$ ). Adoptive mother-child conflict as well as adoptive father-child closeness were also significant in association with child social skills ( $t(298) = 5.45$ ,  $p < .000$ ;  $t(294) = 3.20$ ,  $p < .015$ ). Adoptive father-child conflict, though, did not show a significant association with child social skills ( $t(300) = 1.62$ ,  $p < .18$ ), although total relationship quality with adoptive father did.

**Table 2: Main and Interaction Effects**

Variable	$\beta$	$SE$	$p$
BM ASB	-.025	1.072	.659
Mother Conflict	.243**	.744	.002
BM ASB x Mother Conflict	.081	1.126	.288
Mother Closeness	.387**	.703	.000
BM ASB x Mother Closeness	-.054	1.093	.449
Father Conflict	-.094	.114	.107
BM ASB x Father Conflict	.075	.592	.199
Father Closeness	.185**	.506	.002
BM ASB x Father Closeness	.051	.511	.379

\* $p < .05$ , \*\* $p < .01$

## **Chapter 4**

### **Discussion**

The main finding of this study was the significant association between closeness in each adoptive mother and father's relationship with their child and the child's social competence, as well as the significance between conflict with adoptive mother and child social competence. Arguably as significant is the lack of association between conflict in the adoptive father-child relationship and child social competence as well as lack of connection between birth mother antisocial behavior and child social competence, disproving Hypothesis 1, which, as discussed before, contradicts the significant heritability of antisocial behaviors. Subsequently, Hypothesis 3 was disproved as well, as without a significant association between birth mother antisocial behavior and child social competence, it is impossible for adoptive parent-child relationship quality to serve as a moderator between the two.

The fact that no genetic transmission of birth mother antisocial behavior to adopted child was found in this study could be attributed to the fact that, given the age examined, antisocial behavior manifestation may be found elsewhere than through the child's social competence, which warrants further study. Also warranting future study is the lack of significance of conflict within the adoptive father child-relationship, which could be in part be attributed to low amounts of conflict given the children's age.

In review, Hypotheses 1 and 3 were disproved in that birth mother antisocial was not negatively nor positively correlated with child social competence and therefore this relationship was not moderated by adoptive parent-child relationship quality. Hypothesis 2, however, proved true in that closeness in the adoptive parent-child relationship was positively correlated with child social competence.

### **Implications**

Given the strong association between child social competence and adoptive mother-child and father-child relationship quality, it can be interpreted through this study that relationship quality may

serve as a protective factor and determinant of more positive child outcomes. Such an implication may help the implementation and success of future prevention programs where genetic risk is in fact present, strengthening parent-child relationships in terms of closeness and conflict in order to be proactive of children's social development.

Furthermore, the age of the children assessed in the current study gives unique insight into the earliest consequences of genetic risk of antisocial behavior as well relationship quality and social skills. In addition to assessing antisocial behavior through means other than social competence, it may be beneficial to assess genetic risk of antisocial behavior at a later age as well as to further understand the strength of the effects of the adoptive parent-child relationship quality over a longer period of time. This is particularly important given the long-term, negative effects of long-lasting antisocial behaviors, but also worth understanding the ways in which adoptive-child relationship quality can moderate other genetic risk factors that may worsen, increase, or manifest differently in accordance with child age.

Overall, the current analyses revealed unexpected yet enlightening results that spark important questions in the field of genetic and environmental influences and development. More research is necessary to better understand the family processes involved in children's social development and behaviors in order to prevent negative long-term outcomes.

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