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The Associations Between Relationships with Biological and Foster Parents, Self-Esteem, and Delinquency for Adolescents in Foster Care

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THE ASSOCIATIONS BETWEEN RELATIONSHIPS WITH BIOLOGICAL AND FOSTER PARENTS, SELF-ESTEEM, AND DELINQUENCY FOR ADOLESCENTS IN FOSTER CARE

By

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ABSTRACT

The purpose of this study was to investigate the relationship between delinquency and the three primary relationships of adolescents in the foster care system, biological parent-child relationship, foster parent-child relationship, and the co-parenting relationship between these two parents, using ecological theory as a basis. Self-esteem was included as a mediating variable. The sample included 188 adolescents in long-term foster care and was drawn from the National Survey of Child and Adolescent Well-Being (NSCAW) data. Structural equation modeling was used to analyze the direct and indirect relationships in the proposed model. It was found that self-esteem was a significant mediator between the relationship with foster parent and delinquency. Implications for researchers and clinicians were discussed.
CHAPTER ONE

INTRODUCTION

Currently, over half of a million children reside in the foster care system in the United States as a result of being victims of child maltreatment (U.S. Department of Health and Human Services, 2010). Years of research have shown that maltreated youth involved in the child welfare system are at an increased risk for externalizing behavior problems (Egeland, Yates, Appleyard, & van Dulmen, 2002; Haskett, Nears, Warn, & McPherson, 2006; Hazen, Connelly, Roesch, Hough, & Landsverk, 2009; Lemmon, 2006; Leslie et al., 2010; Salzinger, Posario, & Feldman, 2007; Williams, Van Dorn, Bright, Jonson-Reid, & Nebbitt, 2010). Externalizing behavior problems range from attention seeking behaviors, being disrespectful or acting out in school, to the more extreme of delinquent acts such as truancy, fighting, and stealing (Jonson-Reid, 1998; Ryan, Herz, Hernandez, & Marshall, 2007; Ryan & Testa, 2005).

This increased risk for delinquency of youths who were victims of maltreatment has been shown to be disproportionate compared to youths in the general population. Widom (1989) found that youths with a history of maltreatment were 55% more likely to be arrested and 96% more likely to commit a violent crime. Williams and colleagues (2010) also found that adolescents that had pending charges for delinquent acts were between 20% and 33% more likely to have a history of maltreatment in comparison to a group of adolescents not involved in the juvenile justice system. In a report for the National Institute of Justice, English and colleagues (2002) found that youths who were victims of child abuse or neglect were over four times more likely to be juvenile offenders and twice as likely to be adult criminal offenders than those not reported to have been victims. Leathers (2002) also found that 24-29% of youths in foster care placements were diagnosed with conduct disorder, compared to 4-16% for those in the general population.
When adolescents participate in delinquent activity they risk becoming involved with the juvenile justice system, which has been shown to correlate with later involvement in the adult criminal justice system (Ryan, Hernandez, & Herz, 2007). Furthermore, being that delinquent behavior in adolescence can lead to criminal behavior in adulthood (Dutton & Hart, 1992), it can also be seen as a public health concern. Together, this research emphasizes that delinquency is not simply a problem in adolescence, but can have implications that are long-lasting and widespread.

Given this heightened risk for delinquency and subsequent adult criminal activity for adolescents in foster care, researchers have begun to look at potential protective factors of these specific youths, such as a connection with their caregivers or biological parents (Aguilar-Vafaie, Roshani, Hassanbadi, & Masoudian, 2011; Haskett et al., 2006). Researchers have analyzed the contributions of the parenting relationship between the foster parent, as well as the biological parent and the adolescent placed in foster care. However, the contextual setting of placement in foster care warrants a more thorough systemic approach to understand what factors may influence delinquent behavior of adolescents in foster care, including a variety of relationships in the extended family system, such as the co-parenting relationship between foster and biological parents.

1.1 Background of the Problem

As previously indicated, youths involved in the child welfare system are significantly more at risk for participation in delinquent behavior. Additionally, 16% of youths who were placed in foster care as a result of substantiated abuse were involved with the juvenile justice system, compared to 7% of youths who remained in the home with their families (Ryan & Testa, 2005). Leslie and colleagues (2010) found that young adolescents in the child welfare system
were likely to participate in risky behaviors and self-reported a high prevalence of participating in delinquent activity. While research has reiterated the increased risk for delinquency for youths in foster care, some indicate a lack understanding of the connection between maltreatment, involvement in foster care and subsequent delinquent activity, and thus more research in this area is warranted (Bender, 2010; Brezina, 1998; Jonson-Reid, 2004).

It has also been found that a more consistent and secure relationship with biological parents is associated with lower levels of externalizing behaviors of youths in care (McWey, Acock, & Porter, 2010; McWey & Mullis, 2004). Additionally, there has been support for biological and foster parents to work collaboratively for the benefits of children in care (Jones & Kruk, 2005). Linares and Montalto (2010) showed that a more collaborative and cooperative co-parenting relationship between the substitute caregiver and the biological parent was associated with better well-being for young children in a foster care setting.

Studies have often times looked at how relationships and connections to others may impact the behaviors of youths in foster care (Andersson, 2005; Moyer, Farmer, & Lipscombe, 2006; Orme & Buehler, 2001; Ryan, Testa, & Zhai, 2008). For example, Leathers (2002) found that young males with a stronger attachment to their foster families displayed less behavioral concerns than those with weaker attachments. Ryan and colleagues (2008) found that a stronger connection to foster families was associated with a lower risk for involvement in delinquent behavior.

Studies have also looked at other factors that may contribute to the elevated risk for youths in foster care to participate in delinquent activity (Bender, 2010; Yun, Ball, & Lim, 2011). Kools (1997) described feelings of diminished self-worth, or self-esteem, of adolescents who resided in foster care settings. Researchers have investigated the connection between self-
esteem of adolescents and delinquent behavior (Barry, Grafeman, Adler & Pickard, 2007; Rosenberg, Schooler, & Schoenbach, 1989). Interestingly, it was found that these two constructs had mutual effects: low self-esteem was found to precipitate delinquency and involvement in delinquency could actually heighten self-esteem (Rosenberg, Schooler, & Schoenbach, 1989). These complex findings warrant further investigation into the connection between these two constructs.

Furthermore, researchers have found a connection between adolescents’ relationships with caregivers or parents and adolescents’ reported self-esteem (Farruggia, Chen, Greenberger, Dmitrieva, & Macek, 2004, Luke & Coyne, 2008). Parker and Benson (2004) expanded this connection and found the parental relationship was related to both self-esteem and delinquency.

Understanding the connection of maltreatment, placement in foster care, and subsequent delinquency of adolescents in foster care has been an investigated area of research for decades. When looking at this area of research, one can find several trends, strengths, as well as areas for improvement. When reviewing the literature in this area as a whole, one of the most notable limitations is that several studies focus on the history of maltreatment as it relates to delinquency later in adolescence (Dutton & Hart, 1992; Haskett et al., 2006; Lemmon, 2006; Yun et al., 2011), rather than looking at the unique context of substitute care and how that correlates to elevated risks for delinquency during adolescence. Studies have investigated the connection between adolescents’ relationships with foster parents and biological parents and behavioral outcomes, such as delinquency (Leathers, 2002; Ryan et al., 2008; Vuchinich et al., 2002). Furthermore, studies have tested the connection between self-esteem and delinquency (Barry et al., 2007; Farruggia et al., 2004; Parker & Benson, 2004; Rosenberg et al., 1989). No known study to date, however, has examined these various relationships, namely self-esteem and delinquency concurrently within the same model. This study contributed to the literature by
concurrently examining such factors in a conceptual model in order to further understand the association between these constructs.

1.2 Purpose of the Study

The overall aim for this study was to determine how the biological parent-child relationship, the foster parent-child relationship, and the co-parenting relationship between the biological and foster parent related to delinquency among adolescents in the foster care system. Additionally, self-esteem was explored as a possible mediator between these three relationships and delinquency. Direct and indirect effects from all variables to the dependent variable, delinquency, were explored to see how these constructs are interrelated.

Utilizing ecological theory as a framework, and its emphasis on understanding the interconnection between different systems, the following research questions were addressed in this study:

1. To what extent does an adolescent’s reported relationship with a biological parent relate to levels of reported delinquency?
2. To what extent does an adolescent’s reported relationship with a foster parent relate to levels of reported delinquency?
3. To what extent does an adolescent’s perception of the co-parenting relationship between the biological and foster parent relate to levels of delinquency?
4. To what extent does an adolescent’s report of self-esteem mediate the associations between these three relationships and levels of delinquency?

1.3 Hypotheses

Several hypotheses were tested in this study:
• **Hypothesis 1**: It was hypothesized that higher quality biological parent-child relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

• **Hypothesis 2**: It was hypothesized that higher quality foster parent-child relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

• **Hypothesis 3**: It was hypothesized that higher quality co-parenting relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

• **Hypothesis 4**: It was hypothesized that higher scores of self-esteem would mediate relationships between the three parenting relationships and delinquent behaviors.

Theses hypotheses are displayed in Figure 1 below.

1.4 Definition of Terms

The following definitions were derived from relevant literature on these topics:

• **Delinquency** – Delinquency typically refers to the involvement in criminal activity of juveniles (under the age of 18 years old). Delinquency includes a range of behaviors including, but not limited to truancy, theft, violence, assault. Delinquency, in this study, included self-reports by youth, utilizing the Youth Self-Report scale (Achenbach, 1991) and therefore included delinquency activities in which the youth admits to participating. Delinquency is not limited to only acts that resulted in involvement with the criminal justice system, as some studies have done.

• **Co-Parenting**: Co-parenting typically refers to the collaboration and alliance developed by parents while raising children in some sense of a collective manner. For the purposes of this
study, co-parenting referred to the relationship between the biological parent and foster parents and their ability to work collaboratively in regards to parenting techniques.

- **Parent-Child Relationship** – For the purposes of this study, adolescents’ reports of the quality of the relationship with both the biological and foster parent were included. Quality of relationship was defined by adolescents’ report of emotional connection and parental warmth.

- **Self-Esteem** - Self-esteem is often times synonymous with terms such as “self-worth” or “self-concept.” Rosenberg (1986) defined self-esteem as a reflection of individuals’ perceptions of themselves, which can be influenced by social comparison as well as self-attribution. For this study, the Negative Self-Esteem scale from the Child Depression
Inventory (Kovacs, 1982), a self-report scale, provided the adolescent’s perception of their feelings of self-worth, or “self-esteem.”

- **Adolescent**- For the purposes of this study, an adolescent was defined as an individual between the ages of 11 and 18 years, who completed measures during Wave 1 of the National Survey of Child and Adolescent Well-Being (NSCAW). Researchers must consider biological, cognitive, and social markers (Kaplan, 2004) and therefore there is some discord about when the onset of adolescence occurs. The Office of Population Affairs (n.d.) has identified age 11 as the onset of adolescence. Additionally, measures within the NSCAW dataset defined adolescence beginning at age 11 (NSCAW, 2002).

- **Youth**- For the purposes of this study, the term “youth” was defined as synonymous to “adolescent.”

### 1.5 Abbreviations

- PPCT: Process-Person-Context-Time
- NSCAW: National Survey of Child and Adolescent Well-Being
- CPS: Child Protective Services
- LTFC: Long-term Foster Care
- CDI: Child’s Depression Inventory
- YSR: Youth Self Report
- CBCL: Child Behavior Checklist
- FIML: Full Information Maximum Likelihood
- ANOVA: Analysis of Variances
- SEM: Structural Equation Modeling
- RMSEA: Root Mean Square Error of Approximation
• CFI: Comparative Fit Indices
• WLS: Weighted Least Squares
• Df: Degrees of freedom
CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Framework: Ecological Theory

Urie Bronfenbrenner (1979) is most widely known for developing the theory of ecological systems. This theory includes the examination of various systems that impact individuals and families. While this theory does contain various levels of systems, it is important to emphasize that these systems do not operate in isolation, but rather have continual reciprocal interactions occurring. Furthermore, this implies that the individual or family is not simply a recipient of the various systems’ interactions, but is also able to influence the varying system levels. It has been shown that to understand the diversity of adjustment for children involved in the foster care system, one must consider various contextual factors that relate to outcomes (Haskett et al., 2006).

Ecological theory is one that has been continually revised by Bronfenbrenner up until his death in 2005. Tudge and colleagues (2009) stressed the critical importance of researchers to accurately identify which version of the theory they are utilizing to guide their work. In his earlier works, Bronfenbrenner (1979) clearly identified various systems and aspects of an individual’s context that can greatly influence behavior and other aspects of development. The most recent version of Bronfenbrenner’s theory, while still including the various systems from previous versions, focused significantly on the Process-Person-Context-Time model (PPCT), which described how these four concepts interacted to further explain human development (Bronfenbrenner, 2005; Tudge, Mokrova, Hatfield, & Karnik; 2009). While these aspects of PPCT and newer versions of Bronfenbrenner’s work may be relevant to the topic, this study
drew from Bronfenbrenner’s earlier works and emphasis on contextual factors and the various systems that impact human development.

The first level of systems in Bronfenbrenner’s ecological theory (1979) is the microsystem. For this study, the microsystem is the system within which the adolescent in foster care would most often come into contact. For an adolescent in foster care, this could be the biological family, foster family, school setting, peers, case management agency and other community activities that are important to the adolescent, such as extracurricular activities or religious institutions. Additionally, the connections that these adolescents have with their various microsystems can impact outcomes. For example, Farineau and McWey (2011) specifically looked at how adolescents’ participation in extracurricular activities related to delinquency levels. Surprisingly this association was found to be a negative relationship (i.e. more involvement in extracurricular activities was related to higher levels of reported delinquency), and this association was impacted by the relationship the adolescents had with his/her caregiver. This reemphasizes the significance of this microsystem - the relationship between the adolescent and his/her foster parent.

Also, adolescents in foster care may experience several changes in their microsystems as they move between placements. An adolescent may experience multiple foster families, as well as different schools and neighborhood settings. Ryan, Testa, and Zhai (2008) emphasized how connections and social bonds can influence levels of delinquency for adolescents in foster care, with more positive social bonds being related to decreased levels of delinquency. It has also been stated, in regards to the microsystem, that one must consider the interactions that a child has with people and also the activities in which children engage. These are influenced by: (1) children’s personal characteristics; (2) children’s preference in activities; (3) children are predisposed to
pursue increasingly complex activities in their environment; and (4) ability to organize experiences (Thomas, 2005).

The second level of ecosystems is the mesosystem, which is considered the interaction between two microsystems, separate from their distinct relationships with the individual (Brofenbrenner, 1979). This is especially relevant to adolescents in foster care, who have various microsystems that can either work collaboratively together for the benefit of the adolescent, or conflict which could result in confusion for the adolescent. For example, the goals for the adolescents from the perspective of the biological family, foster family, and even case management agency could vary greatly. How these different microsystems of the adolescent interact can greatly impact outcomes for adolescents in the child welfare system. Drawing from the divorce literature on co-parenting, it has been shown that conflict between the parents of divorced children and adolescents can lead to worse outcomes for the children (Emery, 1982; Buchanan, Maccoby, & Dornbusch, 1991). Linares and colleagues (2006) also found that a parenting curriculum which incorporated a co-parenting component of therapy was found to relate to lower levels of externalizing behaviors in children in a foster care setting. Therefore the mesosystem and the interaction of the biological parents and foster parents were found to impact externalizing behaviors of the children.

Another level and concept in ecological theory is the exosystem. The exosystem refers to systems that while the adolescent may not be directly involved with, can greatly impact the adolescent’s functioning. Several examples can be found within the child welfare system for adolescents. For example, policies that impact placement, reunification, and other factors with the foster care system can have great influences on the adolescent’s life and well-being, although the adolescent may not be directly involved with those systems. Foster care licensing agencies
must develop policies that determine who is able to become a foster parent, as well as criteria for continuing licensure. These policies can impact the number of available foster parents, and could also lead to some foster parents, with whom an adolescent in foster care may be placed, to not maintain licensure leading to a placement disruption. Placement disruption has been found to be associated with increased risk for delinquency (Ryan & Testa, 2005). Additionally, it has been shown that adolescents already displaying delinquent behavior are more likely to be placed in a group home (Ryan, Marshall, Herz, & Hernandez, 2008). While this study will not directly address these exosystems, the findings of this study could have useful implications for both foster care setting policies as well as legislative policies.

Often considered the highest level of ecosystems is the macrosystem. This refers to larger society’s widely held beliefs and the cultural milieu. Placement in foster care has often times had negative stereotypes in our society. Adolescents, specifically, may face stigmatization from peers based on society’s view of the foster care system and those involved with it (Kools, 1997). This stigmatization may lead to adolescents feeling more disconnected which can in turn lead to adolescents engaging in delinquent activity. Ryan, Testa and Zhai (2008) found that feeling disconnected from both peers and caregivers can lead to adolescents engaging in delinquent behaviors.

Another system that was added by Brofenbrenner was the chronosystem, which refers to the historical context or time period within which an individual or family exists. While some may not see how this can directly impact adolescents in foster care, it can certainly be relevant. The political context and various events within a time period greatly impacts policies and statutes that affect adolescents in the foster care system. It was not until recently that policies were developed to protect adolescents who are involved in the foster care system as they age out of the
system. Dutton and Hart (1992) investigated how childhood abuse and neglect was often found in the history of men incarcerated in prison in Canada. Several decades ago, such policies that focus on long-term effects did not exist and therefore much emphasis may not have been placed on intervening with adolescents who participated in delinquent behavior while in the foster care system. One might say that the current cultural milieu is to consider the long-term effects for adolescents and society; therefore policies should be implemented to intervene with adolescents at risk for delinquent behavior and later adult criminal activity, based on findings, such as those from this study.

Ecological theory can be helpful in researching the role of relationships and delinquency for adolescents in foster care. For the purposes of this study, the first two levels – namely the microsystems and mesosystem, were primarily investigated, however this study can also have relevance to higher levels such as the macrosystem. It is important to consider not only the adolescent’s individual characteristics, but more importantly one must consider the various contexts within which the adolescent operates. Leathers (2002) emphasized that one must consider the various factors and differing contextual levels that may impact a child within the foster care context. Follan and Minnis (2010) reiterated the importance of considering environmental factors, beyond just the attachment of youths, when examining relationships for youths who have been victims of abuse or neglect and have been removed from their homes. One strength of this theory is that it does not consider an adolescent in isolation in regards to his/her development and trajectories in life, rather it considers the many systems the adolescent interacts with on a continual basis and how mutual influence occurs.

Jonson-Reid (2004) specifically utilized ecological theory to explain how the change of environment for children placed in foster care may account for the increased risk for
delinquency. Haskett and colleagues (2006) also analyzed various factors that may be associated with resiliency of children involved in the foster care system. These researchers highlighted the need to consider various levels of factors, including individual factors as well as systemic family factors that may impact behavioral outcomes for youths involved in the foster care system. Orme and Buehler (2001) also stressed the importance of understanding multiple factors that may influence outcomes for youths in care and specifically used ecological theory as their guiding theory.

Brezina (1998) investigated three varying criminological theories as a means for explaining the intervening processes that lead to increased levels of delinquency for those that have been maltreated and subsequently were in the foster care system. Despite elaborate conceptual models to test the links between these various theories, none of the theories were supported as a result. It may be that the theories utilized, such as social strain, social control, and social learning theory, were not encompassing of all the various ecosystems that must be considered when investigating the intervening processes and the relationship between maltreatment and delinquency. Utilizing ecological theory to include various systems, such as multiple parent-child relationships, and co-parenting relationship, that impact an adolescent and subsequent delinquency could greatly improve this research area. Furthermore, these findings can have implications for policy development, often considered the exosystem.

Leathers (2002) highlighted that several studies within the foster care research area utilized attachment theory to explain and predict certain outcomes of children and adolescents in foster care. As previously stated, one strength of ecological theory is that it does not place an adolescent in isolation in regards to his/her development and trajectories in life, but considers the multiple systems and contexts within which the adolescent interacts. Leathers (2002) emphasized
that one must consider the various factors and differing contextual levels that may impact a child within the foster care context. Bowlby’s attachment theory has often been seen as a preferred theoretical model to understand the connection between disrupted relationships and negative outcomes related to maltreatment youths (Kobak & Madsen, 2008), however, it is important to consider not only the adolescent’s individual characteristics and relationships, but more importantly one must consider the various contexts within which the adolescent operates. While attachment theory is a beneficial theory, one cannot ignore the unique context of foster care and various ecosystems, in addition to the parent-child attachment, when considering outcomes for adolescents in the child welfare system. Baskin and Sommers (2011) reiterated the need to investigate various factors that may lead to a risk for delinquency, while simultaneously identifying potential protective factors against delinquent involvement. Bender (2010) also proposed the use of a model including multiple factors that may contribute to the development of delinquent behavior of youths. Furthermore, ecological theory accounts for various relationships not only with youths themselves, but other relationships beyond just the parent-child relationship, such as the co-parenting relationship between biological and foster parents.

2.2 Delinquency

In a previous study that utilized the Child Behavior Checklist for children in state custody, 34% of children were rated as having significant behavioral problems (Heflinger, Simpkins, & Combs-Orme, 2000), and other researchers (Lemmon, 2006; Leslie et al., 2010; Ryan et al., 2007) noted that intervening with this specific subpopulation of youths is particularly important as they have compound factors, including being victims of maltreatment, residing in the foster care setting, and being involved with delinquent acts and the juvenile justice system at an earlier age. Additionally, it has been found that youths with a history of foster care
involvement are at risk of exhibiting delinquent behaviors earlier than those without foster care experience (Alltucker, Bullis, Close, & Yovanoff, 2006). This is particularly concerning as it has also been shown that earlier onset of delinquent behavior is predictive of adult criminal behavior. Leathers (2002) also highlighted that behavioral disturbances for those in the foster care system may be of particular concern because these disturbances may delay or even prevent reunification with their biological families. Results showed that adolescent boys were almost twice as likely to have behavioral disturbances that meet the criteria for conduct disorder compared to boys in the general population. Finding ways to increase resilience of these youths becomes more critical as we begin to see the long-term effects that delinquency may have on these youths. What is important to highlight is that adolescents participating in delinquent acts are not only involved with the juvenile justice system, but are at increased risk for becoming offenders as adults and being involved in the criminal system as adults (Ryan et al., 2007). Intervening with youths at a younger age may prevent involvement with the adult criminal system, which is a larger societal concern.

Various demographic and contextual factors of adolescents have also been shown to be related to reported delinquent behavior. Repeated maltreatment of youths throughout their childhood also has been linked to increases in delinquency and also more chronic and violent acts above and beyond other sociodemographic factors that may put adolescents more at risk for engaging in delinquent acts (Lemmon, 2006). Additionally, adolescents in foster care are also more likely to be placed in group settings (Ryan & Testa, 2005), which have often times been found to have a deleterious effect in regards to delinquency ratings of adolescents involved in the foster care system (Ryan et al., 2008). This unique placement setting exacerbates the risk for adolescents already in foster care, which alone places them more at risk for displaying a range of
externalizing behaviors. While some studies have shown that placement in the foster care system can reduce the effects of maltreatment on delinquency of youths (Lemmon, 2006), it has also been found that youths in the foster care system are not only more at risk for being involved with the juvenile justice system, but they are also more likely to receive harsher punishments after conviction (Ryan et al., 2007). Therefore, it is not only concerning that these youths may be displaying more severe behaviors, but they risk being given harsher punishments when their externalizing behaviors results in involvement with the juvenile justice system.

Ryan and colleagues (2007) also suggested that involvement in the juvenile justice system perpetuates the cycle as youths often times lose the support of family when they enter the juvenile justice system. The risk of delinquency and its impact on individuals and families extends beyond just those involved in the foster care system directly. It is also a concern for the general population, who may be victims of these crimes, as it has been shown that youths that participate in delinquency as adolescents are more at risk to be involved with the adult criminal justice system (Dutton & Hart, 2002; National Institute of Justice, 2002). Understanding the risk for delinquency, and furthermore understanding factors that may influence adolescents’ participation in delinquency activity is imperative.

### 2.3 Parent-Child Relationships

The parent-child relationship has often been a point of interest for researchers (Andersson, 2005; Simons, Chao, Conger, & Elder, 2001). Maintaining a positive relationship and continued contact with biological parents can be beneficial for adjustment and behavioral outcomes of youth in foster care (Haskett et al., 2006; McWey et al., 2010; Moyers et al., 2006). McWey and Mullis (2004) found that youths that displayed a more secure attachment to their parents were less likely to have behavioral concerns that required the use of psychotropic
medication. Supportive parenting has also been shown to serve as protective factor for resilient functioning of maltreated youths (Haskett et al., 2006). Andersson (2005) showed that for youths, reporting a stronger parent-child relationship was related to better social adjustment and well-being over time. This was true for both youth placed with their biological parent or with a foster parent. Conversely, more negative parent-child relationships have been shown to be a risk factor for adolescent participation in delinquent behaviors (Hoeve et al., 2009; Keijsers, Loeber, Branje, & Meeus, 2011; Loeber & Dishion, 1983; Patterson & Southamer-Lober, 1984; Stice & Barrera, 1995). Furthermore, Salzinger and colleagues (2007) also found that the quality of the parent-child relationships mediated the relationship between prior abuse and later delinquent behavior. Simons and colleagues (2001) further showed that the quality of parenting predicted deviant and delinquent behavior in adolescence. Keijsers and colleagues (2011) further indicated that the quality of parent-child relationships tended to decrease in adolescence, and this was also correlated with an increase in delinquent behavior. Overall, these studies indicated secure parent-child relationships were beneficial for adolescents.

Additionally, Vuchinich and colleagues (2002) found that a more positive-parent child relationship with the foster parent for youths in foster care was associated with lower levels of externalizing behaviors. Oosterman and Schnuegel (2008) also found that foster parents who displayed more sensitivity were more likely to report fewer externalizing behaviors of children placed with them. These findings were supported in a study by Ryan, Testa and Zhai (2008) in which positive relationships with one’s caregiver were associated with a decreased risk of engaging in delinquent behaviors, specifically among African American males in a foster care setting. Additionally, youths in foster care who reported stronger attachments with their caregivers were shown to have fewer behavioral problems (Leathers, 2002). Taken together,
these findings indicated that promoting the foster parent-child relationship is important for adolescents in foster care and their risk for involvement in delinquent acts.

The history of maltreatment should also be considered when examining parent-child relationships. Adolescents who have endured abuse in childhood or adolescence may also report a range of feelings in regards to their parent-child relationships. Follan and Minnis (2010) found that adolescents removed from their homes due to incidents of abuse or neglect were more likely to experience relationship issues with caregivers. Likewise, these youths were also at risk for a diagnosis of Reactive Attachment Disorder, which could impact future relationships. Furthermore, victims of sexual abuse generally report more negative views of their abusers, whereas victims of physical abuse generally maintain relationships with their biological parents who committed the abuse (Kolko, Brown, & Berliner, 2002). Given these findings, it is also important to investigate how the type of maltreatment endured by adolescents may relate to reports of their parent-child relationship.

2.4 Co-Parenting Relationships

The construct of the co-parenting relationship has been shown to impact a range of child outcomes for children enduring divorce (Emery, 1982; Whiteside & Becker, 2000). Specifically, Emery (1982) found that more conflictual co-parenting relationships were associated with more negative outcomes of children enduring a divorce. Buchanan, Maccoby, and Dornbusch (1991) found that adolescents’ conflicted allegiance to each parent was directly related to the quality of the co-parenting relationship. A more conflictual co-parenting relationship was predictive of poorer adjustment after divorce for these adolescents. Baril and colleagues (2007) also found higher quality co-parenting relationships with always-married families were inversely related with adolescents’ risky behavior. Furthermore, adolescents may be triangulated in parental
relationships which can be correlated with negative adjustment (Buehler & Welsh, 2009). As such, the co-parenting relationship may have important implications for adolescent outcomes.

Given the research in the field of divorce, one may hypothesize that co-parenting relationships may also impact child outcomes of youth in foster care. Children involved in the foster care system have both foster and biological parents. The relationship between a foster parent and biological parent is unique because children in foster care are often involuntarily placed with a foster family that is new to both the child and the biological parent. Leathers (2003) highlighted the difficulty that children may endure due to loyalty binds with both the biological and foster parent. Being placed with a foster family requires the child to create a bond with their caregiver and as a result, the child may feel conflicted in regards to his/her loyalty to the biological parent. This sense of boundary ambiguity and allegiance to one or both parents may significantly impact children resulting in emotional and behavioral problems (Leathers, 2003).

More research is needed to understand the extent to which a collaborative relationship between both the biological and foster parents is associated with lower levels of problematic behavior. Jones and Kruk (2005) proposed the importance of a collaborative and cooperative co-parenting relationship for youths in foster care placements. Linares and colleagues (2006) investigated the effectiveness of utilizing co-parenting therapy as a means for reducing behavioral problems of adolescents involved in the foster care system by using a sample from one child welfare agency in New York City. The researchers utilized the Incredible Years parenting intervention and a co-parenting component in comparison to the parenting curriculum alone. The sample was limited to the parents of children who were between the ages of 3 and 10 years old. Results indicated an improvement in overall parenting skills, more collaboration in the
co-parenting relationship, as well as a decrease in externalizing behaviors for children.

Linares, Rhodes, and Montalto (2010) highlighted the importance of assessing and considering the co-parenting relationship within the foster care context. Their study examined the co-parenting relationship of biological and foster parents of children ages 5-8 years old. Results showed that co-parenting aspects of support, shared communication and conflict were predictive of less children’s externalizing behaviors. While this study made an important contribution to the field of child welfare research, more studies are needed, especially with children of varying ages.

As previously mentioned, it has been shown that adolescents involved in the foster care system are significantly more at risk for behavioral problems and being involved with the juvenile justice system. Lemmons (2006) reported that while children who are repeatedly exposed to maltreatment are more at risk for becoming chronic, violent offenders, it is hoped that placement in foster care will help to reduce this risk by providing services and more support to these youths. Leathers (2002) highlighted the need for future research to focus on various associations between youths’ behavioral problems and attachments to their caregivers. Linares and colleagues (2010) emphasized the importance of researching the co-parenting relationship within the context of the foster care system. Their study analyzed the foster parent’s perspective on the co-parenting relationship and how this impacted externalizing behaviors of children ages 5-8 in the foster care system. Identifying protective factors for adolescents in foster care, a population that has been shown to be at risk for negative outcomes, is especially pertinent.

2.5 Self-Esteem

Several researchers have investigated “self-esteem,” which is conceptualized as feelings of self-worth. Self-esteem has long been investigated as an important predictor of well-being in
adolescents (Coopersmith, 1981; Walker & Green, 1986). Kools (1997) reported that youths in the foster care system often times experience devaluation by others and face a sense of stigmatization while placed in the foster care system. Placement in foster care, combined with the scrutiny of peers can hinder their development in regards to self-worth and their identity. Ackerman and Dozier (2005) found that the broken attachment from families by being placed in the foster care system was associated with lower levels of self-esteem for youths. Luke and Coyne (2008) further investigated the impact that foster parents can play in either promoting or diminishing the self-esteem of youths in foster care. Young adults previously in foster care reported that support and feeling loved by or attached to their substitute caregivers greatly impacted their levels of self-esteem. Researchers have also found that a more positive perception of parental warmth was associated, cross culturally, with higher levels of self-image and self-esteem (Farruggia et al., 2004; Parker & Benson, 2004, Paterson, Pryor & Field, 1995). Harvey and Byrd (1998) also found that the overall perception of the relationship with parents was correlated with reported levels of self-esteem in adolescents. A remarkable finding was that adolescents who reported an avoidant or anxious attachment to parents, in fact, reported higher levels of self-esteem. This association was even stronger for younger adolescents (Harvey & Byrd, 1998).

Not only is the construct of self-esteem important when investigating adolescents in the foster care system, it has also been shown that self-esteem can be related to participation in delinquent activity. Rosenberg, Schooler, and Schoenbach (1989) investigated the interconnections between self-esteem and various outcomes for adolescents. Specifically, they found that lower self-esteem was often associated with delinquent behavior, which has been replicated in more recent studies (Barry et al., 2007; Donnellan, Trzesniewski, Robins, Moffit, &
Caspi, 2005). Furthermore, it was found that adolescents reported higher levels of self-esteem as a result of participation in these delinquent acts, which can reinforce the delinquent behavior and thus adolescents used delinquent behavior to compensate for lower levels of self-esteem (Rosenberg et al., 1989; Zieman & Benson, 1983).

It has also been proposed that self-esteem may in fact be a mediator between parenting experiences and delinquency (Wells & Rankin, 1983; Chambers, Power, Loucks, & Swanson, 2000). Rosenberg and colleagues (1989) found that delinquency was directly related to self-esteem and parental behaviors and self-esteem were connected. Chambers and colleagues (2000) suggested that self-esteem may act as a mediator between parental relationships and delinquency, although it was not directly tested in this study. Wells and Rankin (1983) proposed that self-esteem may in fact mediate the relationship between various interpersonal relationships and adolescents delinquent behavior. Although they were not able to show such a relationship, it was proposed that a more complex model was needed to fully understand this potential association. Additionally, Simon and colleagues (2001) found that parenting practices had an indirect effect on delinquency behavior in adolescents. It may be that self-esteem of adolescents may in fact mediate the relationship between the reported relationships with biological and foster parents and reported rates of delinquency. Given the research related to self-esteem, relationships, and delinquency, it seemed important to test how self-esteem may influence the relationship between parental relationships and delinquency outcomes for adolescents in the foster care system.

2.6 Summary

It has been repeatedly shown that adolescents in the foster care system are at risk for being involved in delinquent acts (Heflinger et al., 2000; Lemmon, 2006; Leslie et al., 2010). Previous research has shown the importance of investigating certain relational aspects that may
be protective factors against this risk for externalizing and delinquent behavior (Haskett et al., 2006; Moyers et al., 2006, Linares et al., 2010). Additionally, self-esteem levels for adolescents have also been connected both to relationships of adolescents as well as their behavior (Ackerman & Dozier, 2005; Barry et al., 2007; Parker & Benson, 2004). Although investigated in different studies, no known study, to date, has examined these constructs concurrently to understand how these complex entities may work together to further explain the risk of delinquency for adolescents in foster.
CHAPTER THREE

METHODS

This chapter begins with a description of the National Survey of Child and Adolescent Well-Being study. Sampling procedures and data collection methods are described. The specific sample utilized in this study is described and demographic characteristics are provided. Additionally, the variables of interest for this study are identified and explained. Finally issues with missing data, proposed analytic strategy, and power are discussed.

3.1 National Survey of Child and Adolescent Well-Being

Data for this study were drawn from the National Survey of Child and Adolescent Well-Being (NSCAW). The NSCAW is a nationally-representative study of children involved in the child welfare system. It is the first-known longitudinally and nationally representative dataset of individuals and families involved in the child welfare system. The NSCAW study was initiated after the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, when Congress directed the Department of Health and Human Services to conduct a national study of children who are at risk of abuse or neglect and those who are currently involved in the foster care system.

The NSCAW study consists of two samples: children who have been the subject of reports to Child Protective Services (CPS) agencies, referred to as the CPS sample; and children who have been out-of-home placement, often referred to as the long-term foster care (LTFC) sample (NSCAW, 2002). A two-step stratified sampling method was utilized for the purposes of making the sample representative of the United States population. The first step involved dividing the United States into nine strata, based on areas with the largest child welfare populations. Sampling units of comparable sizes were formed within these nine strata. The
sampling units were composed of all counties in the United States to ensure generalizability of the samples to reflect the entire U.S. population.

Data were collected using reports from children, caregivers, and case workers. Data collection occurred over a 15 month period beginning in October of 1999. Data were collected from 97 counties throughout the United States. The initial sample included 6,231 children from birth to age 14 year old. A total of 5,504 children were included from the CPS sample and 727 were included for the LTFC sample. Data were collected using in person face-to-face interviews with the children, as well as their caregivers, and caseworkers. All of the data collected from the different informants were included under the same participant identification number which allows researchers to compare data from different sources.

### 3.2 Sample

Children who were between birth and 14 years old at the beginning of the data collection period were initially recruited and selected to participate in the full NSCAW study. The sample for this specific study included only adolescents between the ages of 11 and 17 years old from the LTFC sample, as the intention was to investigate variables for adolescents currently placed in the foster care system. The NSCAW has five waves of information, but this study utilized data only from Wave 1. The final sample of the present study included 188 respondents (25.9% of all respondents in the LTFC sample).

#### 3.2.1 Exclusion Criteria

Children who were deemed to be perpetrators of abuse were excluded from the study by the NSCAW task force and therefore were not included in the dataset. Additionally, children who were siblings of another child who had already been selected to participate in the study were not included. This was to prevent excessive stress on one family by having multiple children
involved in completing questionnaires. Additionally, this ensures that the data of the children included in the sample are independent.

3.2.2 Demographic Characteristics

Demographic characteristics were included in the present study for the purposes of generalizability. Information related to age, gender, race, type of out of home placement, type of abuse that lead to placement and length of time in foster care were analyzed in a priori tests to determine the relevance for inclusion in later analyses. Although the intention was to include adolescents between the age of 11 and 17 years old, the age range of adolescents in the sample was 11-16 years \( (M = 13, SD = 1.4) \). In this sample, 52\% of the participants were male \( (n = 98) \) and 48\% were female \( (n = 90) \). The racial distribution of participants was: Caucasian \( (42.6\%, n = 80) \), African American \( (42\%, n = 79) \), American Indian \( (11.2\%, n = 21) \), Asian \( (1.6\%, n = 3) \), and 3\% of the sample self-identified as “other” \( (n = 5) \). Type of out-of-home placement also differed among the sample: 44.7\% \( (n = 84) \) were living in a foster home; other living arrangements included kinship care placements and permanent caregivers \( (19.1\%, n = 36) \), group homes and residential facilities \( (16.5\%, n = 31) \), and other out-of-home care arrangements \( (19.7\%, n = 37) \). The length of time in care for adolescents in this sample ranged from 31 days to 1,118 days in care \( (M = 674.27, SD = 384.31) \). The type of maltreatment experienced by adolescents also differed among the sample: 12.8\% endured physical abuse \( (n = 24) \), 52.1 \% experienced neglect \( (n = 98) \), 8.5 \% experienced emotional abuse \( (n = 16) \), 10.6 \% reported experiencing sexual abuse \( (n = 20) \), and 16.0\% reported some “other” form of maltreatment \( (n = 30) \).
<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
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<td>52.1</td>
</tr>
<tr>
<td>Female</td>
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<td>47.9</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>36</td>
<td>19.1</td>
</tr>
<tr>
<td>12</td>
<td>35</td>
<td>18.6</td>
</tr>
<tr>
<td>13</td>
<td>41</td>
<td>21.8</td>
</tr>
<tr>
<td>14</td>
<td>47</td>
<td>25.0</td>
</tr>
<tr>
<td>15</td>
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<tr>
<td>16</td>
<td>1</td>
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<td><strong>Race</strong></td>
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<tr>
<td>Caucasian</td>
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<td>42.6</td>
</tr>
<tr>
<td>African American</td>
<td>79</td>
<td>42.0</td>
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<td>11.2</td>
</tr>
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<td>1.6</td>
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<tr>
<td>Other</td>
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<tr>
<td><strong>Placement type</strong></td>
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<td></td>
</tr>
<tr>
<td>Foster home</td>
<td>84</td>
<td>44.7</td>
</tr>
<tr>
<td>Kinship care</td>
<td>36</td>
<td>19.1</td>
</tr>
<tr>
<td>Group homes</td>
<td>31</td>
<td>16.5</td>
</tr>
<tr>
<td>Other living arrangement</td>
<td>37</td>
<td>19.7</td>
</tr>
<tr>
<td><strong>Type of abuse</strong></td>
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<td></td>
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<td>Physical Abuse</td>
<td>24</td>
<td>12.8</td>
</tr>
<tr>
<td>Neglect</td>
<td>98</td>
<td>52.1</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>16</td>
<td>8.5</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>20</td>
<td>10.6</td>
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<tr>
<td>Other</td>
<td>30</td>
<td>16.0</td>
</tr>
</tbody>
</table>
3.3 Measures

The measures for the study involved self-report data. Rosenthal and Curiel (2006) found that youths’ reports of their behaviors may differ significantly from those reported by caregivers or teachers. To provide the perspective of the adolescents and maintain consistency of informants, measures will all include self-report data from adolescents.

3.3.1 Biological Parent-Child Relationship

The measure of the quality of the biological parent-child relationship was developed by the researcher utilizing questions included in the child instrument for children in out of home placement. For this study, relationship with biological parent was restricted to biological mothers. A scale score was generated using three questions: “How often do you do fun things with your real mom when you see her?” and “How often do you talk to your real mom about important things in your life when you see or talk to her?” For these questions, youths could respond “never,” “hardly ever,” “sometimes,” “most of the time,” or “all of the time.” Another question that asked “how much contact would you like to have with your mom?” and youths could respond “more,” “less,” or “same.” All items were standardized and items were summed together to create a relationship with biological mother score. Cronbach’s alpha was 0.60 for the purposes of this study. The range of scores for the Closeness with Biological Parent scale fell within the range of -4.73 to 2.74 points for a range of 7.47. The mean score was .13 and standard deviation for the scores was 2.13. The descriptive statistics for the measure of the biological parent-child relationship is provided in Table 2.

3.3.2 Foster Parent-Child Relationship

The measure of the quality of foster parent-child relationship was developed by the researcher utilizing questions included in the child instrument for children in out of home placement.
placement. A scale score was developed utilizing questions included in the child instrument for children in out of home placement that included the questions, “How close do you feel to [caregiver name]?” where youths could respond “not at all,” “a little bit,” “somewhat,” “quite a bit,” and “very close.” A second question that was included asked “How much do you think [caregiver name] cares about you?,,” where youths could respond with “not at all,” “very little,” “somewhat,” “quite a bit,” or “very much.” The Cronbach’s alpha was 0.82 for the purposes of this study. The range of scores for the Closeness with Caregiver scale fell within the range of 2 to 10 points for a range of 8. The mean score was 8.25 and standard deviation for the scores was 2.14.

3.3.3 Co-Parenting Relationship

The measure of quality of the co-parenting relationship was derived from a question from the child-administered questionnaires. Youths were asked “Do your caregiver and your real mom get along OK?” Responses for this question were “yes” or “no.”

3.3.4 Self-Esteem

The Child’s Depression Inventory (CDI; Kovacs, 1982 as cited in NSCAW) has a subscale for Negative Self-Esteem. This self-administered instrument is utilized to report self-esteem of children and adolescents. The Negative Self-Esteem subscale utilizes five questions such as “I do not like myself.” As the title indicates, this subscale is negatively scored and therefore a higher score indicates lower self-esteem and a lower score indicates higher self-esteem from the perspective of the adolescent. This measure is intended to be utilized with children over the age of 8 years old and has also been shown to be appropriate for diverse populations (Garcia, Aluja, & del Barrio, 2008). This measure has also previously been used with adolescents in the foster care system (Farineau, Wojciak, & McWey, 2011; Kugler, Bloom,
Kaercher, Truax, & Storch, 2012). This measure has been shown to have acceptable levels of internal consistency with alpha levels between 0.71 and 0.87 (Kovacs, 1982, as cited in NSCAW). For this study, Cronbach’s alpha was 0.77. Acceptable levels of internal consistency and reliability have been replicated in other studies (Saylor, Finch, Spirito, & Bennett, 1984). The range of scores for the Negative Self-Esteem scale fell within the expected range (37 to 89) for a range of 52. The mean score was 48 and standard deviation for the scores was 11. In examining boxplots, two outliers were identified with scores of 86 and 89, although these were within the acceptable scale score range.

3.3.5 Delinquency

The Youth Self Report (YSR) is derived from the Child Behavior Checklist (CBCL; Achenbach, 1991). This self-administered instrument is intended to be used with adolescents to self-report both emotional and behavioral disturbances. Within this questionnaire, eight subscales are created, one of which is a subscale score for a Delinquency Scale. Twenty-two questions related to stealing, using alcohol or drugs, lying, cheating, and other delinquent behaviors were asked. Adolescents can respond by indicating “not true,” “somewhat true,” and “very often true.” Delinquency scale scores are calculated by summing all responses (Achenbach & Edelbrock, 1987). This subscale has been shown to have acceptable levels of test-retest reliability (greater than .74) and is reliable with both male and female respondents (Achenbach, 1991). Achenbach (1999) has reported an alpha level of 0.63 and reported good validity for this measure. For this study, the Cronbach’s alpha was 0.92. This measure has also been used in other studies involving adolescents involved in the child welfare system (Farineau & McWey, 2011; Mennen, Brensilver, & Trickett, 2010; Traube, James, Zhang, & Landsverk, 2012). The range of scores for the Delinquency scale fell within the expected range (50 to 93) for a range of 43. The mean
score was 57.21 and standard deviation for the scores was 8.68. In examining boxplots, the
distribution of delinquency scores is positively skewed, with most adolescents reporting less
delinquent behavior.

Table 2

Descriptive Statistics of Youth Reports of Relationship, Mediator and Outcome Variables
(N = 188)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship with Biological a</td>
<td>0.13</td>
<td>2.13</td>
<td>-4.73 - 2.74</td>
<td>0.60</td>
</tr>
<tr>
<td>Relationship with Foster Parent</td>
<td>8.25</td>
<td>2.14</td>
<td>2.00 - 10.00</td>
<td>0.82</td>
</tr>
<tr>
<td>Co-Parenting Relationship b</td>
<td>1.05</td>
<td>0.23</td>
<td>1.00 – 2.00</td>
<td></td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>48.00</td>
<td>11.00</td>
<td>37.00 - 49.00</td>
<td>0.77</td>
</tr>
<tr>
<td>Delinquency</td>
<td>57.21</td>
<td>8.68</td>
<td>50.00 - 93.00</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Note. aRelationship with Biological Parent: Scale was standardized and centered , bCo-Parenting Relationship: 1 = yes, 2 = no.

3.3.6 Covariates

The demographic variables of age of youth, gender of youth, placement type, race of child, type of abuse that lead to placement, number of placements while in care and length of time in foster care were used as covariates in this study. These variables were self-reported by the adolescents as well as retrieved from case files provided by the local child welfare agencies.
3.4 Missing Data

As with most large datasets, there are missing data in the NSCAW study. For the purposes of the present study, missing data were addressed using full information maximum likelihood (FIML). Given the limited sample of 188 adolescents, FIML is more appropriate for the statistical methods and sample size identified (Enders, 2006). The FIML utilizes log-likelihood computations to generate data based on the observed data points provided in a sample. One advantage of FIML is that parameters and standard errors are estimated directly using observed data. The use of the observed data helps to provide a more accurate estimation of the missing data (Enders, 2006). Furthermore, FIML has been found to be a more effective and unbiased method of converging missing data than listwise or pairwise deletion methods (Enders & Bandalos, 2001).

3.5 Analysis Plan

This study sought to address the following hypotheses:

- **Hypothesis 1**: It was hypothesized that higher quality foster parent-child relationship scores would have a direct negative effect on delinquent behaviors as reported by adolescents.

- **Hypothesis 2**: It was hypothesized that higher quality biological parent-child relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

- **Hypothesis 3**: It was hypothesized that higher quality co-parenting relationship scores would have a direct negative effect on delinquent behaviors as reported by adolescents.

- **Hypothesis 4**: It was hypothesized that higher scores of self-esteem would mediate relationships between the three parenting relationships and delinquent behaviors.
The overarching aim of this study was to test these relationships concurrently within one conceptual model (see Chapter 1). Consistent with recommendations from past researchers (Anderson & Gerbing, 1988; Li, 2011; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), the identification of a conceptual model involved a series of steps. First, the association between potential covariates and the outcome must be tested (Li, 2011). Additionally, the decision on which covariates to include in the model were based on both preliminary analyses, as well as previous research in the field. As such, a series of Analysis of Variance (ANOVAs) and regression analyses were conducted to determine which should be included in the overall conceptual model (Baron & Kenny, 1986). To create a parsimonious model, the proposed covariates of age of youth, gender of youth, placement type, race of child, type of abuse that lead to placement and length of time in foster care relate to the dependent variable of delinquency were analyzed. Age, gender, placement type, race, and type of abuse were individually analyzed using different ANOVA equations to compare means to determine if they were shown to have significant relationships with delinquency. Length of time in care and number of out of home placements were analyzed using linear regression to determine their relationship with reported levels of delinquency. Those covariates that were found to be significantly related to the outcome of delinquency were included in the model. Covariates with an insignificant relationship were not included in the conceptual model in order to create the most parsimonious model. Age was included as a significant covariate in the model. Additionally, although gender was not significant in the ANOVA model, it was included as a covariate as research has shown a difference in delinquency levels among male and female adolescents (Bender, 2010; Postlethwait, Barth, & Guo, 2010). Therefore, for the overall model, only gender and age will be included as covariates. Correlation analyses were also conducted with constructs included in the
model to more readily understand associations prior to completing more sophisticated analyses, as well as address any issues with multicollinearity (Kline, 2011).

3.5.1 Model Testing

Given the nature of the path models generated for the conceptual model of this study, structural equation modeling (SEM) was utilized to analyze the various paths of the full model, for the purposes of testing direct and indirect effects. AMOS software (Arbuckle, 2012) was utilized to conduct the analyses. Several models within SEM can be tested to ensure the best fit to the data, by using indices of fit such as Chi Square, Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Indices (CFI) (Gallagher, Ting & Palmer, 2008; Kline, 2011; McDonald & Ho, 2002). A conceptual model was developed for this study to represent the paths analyzed. Covariates were not included in the conceptual model, but rather were entered as additional exogenous variables, after linear regression and ANOVA analyses were completed. These covariates are shown in the figures when analyses were conducted.

When developing a conceptual model to be tested with SEM, one must first ensure the model is identified. For a model to be identified there must be at least as many observations as there are free parameters in the model, which is also referred to as degrees of freedom (df). A model is considered overidentified if $df > 0$ (Kline, 2011), and the model in this study is found to be overidentified ($df = 1$). In research, power is the probability of rejecting a false null hypothesis. Kline (2011) states that for a structural equation model using path analysis, a researcher wants 10 participants per each freely estimated parameter. Kline further states that a ratio of 5:1 is also acceptable. The number of freely estimated parameters for this study is 14. The sample size for this study meets both of these requirements.
SEM requires the use of estimation methods, which is an iterative process used to estimate the population parameters and the probability of producing the data. One must utilize the appropriate estimation method based on the data and the inherent assumptions within the data (Kline, 2011). The data within this study are assumed to have a non-normal distribution and the data are categorical as well as continuous. Robust Weighted Least Squares (WLS) has been identified as the most appropriate estimation for this type of data (Finney & DiStefano, 2006).

The conceptual model included all possible direct and indirect paths between the independent variables and the mediating variable in hopes of determining the best model for understanding how these variables interact and relate to the dependent variable of delinquency (Kline, 2011). A model containing all paths was entered into AMOS and all paths were analyzed to determine if any, or all, paths were significant. A model trimming method, which involves removing any paths that were not found to be significant, either direct or indirect paths, and then continuing to test refined models was used in this study (Kline, 2011). This continued until all paths included in the model were found to be significant. Then, a model with all significant paths was generated with coefficients included, and is presented in the results section.

3.5.2 Mediation

There have been multiple identified and supported methods for testing mediation among variables (Baron & Kenny, 1986; Efron, 1987; Kline, 2011). For the purposes of being thorough and fully understanding the complex interactions among the identified constructs, three approaches were utilized to test mediation of the mediating variable (self-esteem). Mediator variables can be tested in a path analysis. A variable is said to be a mediator if it accounts for the relationship between two other variables that are found to be related (Baron & Kenny, 1986). As such, mediation was first tested through conceptual models previously described through the
analyses of direct and indirect effects (Kline, 2011). Baron and Kenny (1986) also describe a method of testing mediation through the use of regression analyses. Multiple regression analyses are used to establish a relationship between the independent and both the mediator and dependent variables. Additionally, a regression analysis is used to signify a relationship between the mediator and dependent variables. Mediation is said to occur if the independent variable no longer has a direct effect on the dependent variable when the mediator variable is controlled (Baron & Kenny, 1986). Additionally, a bootstrapping method was utilized to test the construct of self-esteem as a mediator of the interconnection between relationship with foster parent, relationship with biological parent, and the co-parenting relationship between the foster and biological parent, and the outcome variable of delinquency. Shrout and Bolger (2002) further found that bootstrapping is effective with small samples, specifically where it may be difficult to detect an effect and mediating relationship. Bootstrapping (Efron, 1987) uses 2000 reiterations to construct a 95% confidence interval of the mediated effect. This process generated confidence intervals for the size of indirect paths; a mediation effect is deemed significant if the confidence interval does not include zero. As recommended by Efron (1987), biased-corrected confidence intervals were analyzed for the purposes of determining a mediating relationship between the relationship variables, self-esteem and delinquency.
CHAPTER FOUR

RESULTS

As stated above, several steps occurred to analyze the data in this study: (1) preliminary analyses including ANOVA, regression and correlation analyses; (2) regression of constructs and dependent variables; (3) model testing utilizing structural equation modeling; and (4) bootstrapping tests of mediation.

4.1 Preliminary Analyses

To understand the influence of identified covariates, ANOVAs were completed with the dependent variable, delinquency, to determine if certain variables differed according to their means on delinquency ratings. Age of adolescents was significantly related to delinquency, $F(5, 182) = 3.215, p < .05$. The analysis results for race and delinquency revealed a non-significant relationship, $F(4, 183) = .896, p > .05$, with older children reporting more delinquent behavior. Male and female adolescents did not significantly differ in regards to their report of delinquent behavior, $F(1, 186) = .390, p > .05$. Type of out of home placement for adolescents in foster care was not significantly related to the outcome variable, delinquency, $F(3, 151) = 2.518, p > .05$, although it approached significance, $p = .06$. The type of abuse experienced by adolescents was not found to be predictive of delinquency, as reported by adolescents, $F(4, 183) = 1.04, p > .05$.

Regression analyses were also conducted to determine the associations with cumulative days spent in care and the number of out of home placements with the outcome variable, delinquency. Cumulative days spent in care for adolescents was not predictive of reported delinquency levels, $R^2 = .00, F(1,186) = .001, p > .05$. Additionally, the number of out of home placements in which the adolescent resided was not predictive of reported delinquency levels, $R^2 = .008, F(1,186)$
=1.434, \( p > .05 \). Therefore, the only significant covariate, based on statistical analyses was age of the adolescent.

Associations between the identified constructs in the model were tested prior to model testing. Correlation analyses were conducted to determine significant relationships between the various constructs included in the model. All correlation relationships have been reported in Table 3. Self-esteem was significantly correlated with the outcome variable, delinquency, \( r(186) = 0.317, p < .01 \). Additionally, the quality of the foster parent-adolescent relationship was significantly related to the reported self-esteem of adolescents, \( r(186) = -0.234, p < .01 \). An ANOVA analysis was conducted to determine the association between the reported co-parenting relationship and delinquency levels, and it was not found to be significantly related, \( F(1, 73) = 0.214, p > .05 \). Lastly, age of the adolescent was significantly correlated with reported levels of delinquency, \( r(186) = 0.280, p < .01 \).

Table 3

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Delinquency</td>
<td>–</td>
<td>0.317***</td>
<td>-0.015</td>
<td>-0.126</td>
<td>0.80**</td>
<td>-0.002</td>
</tr>
<tr>
<td>2. Self-Esteem</td>
<td>0.317***</td>
<td>–</td>
<td>0.110</td>
<td>-0.234**</td>
<td>0.034</td>
<td>0.026</td>
</tr>
<tr>
<td>3. Relationship with Biological</td>
<td>-0.015</td>
<td>0.110</td>
<td>–</td>
<td>-0.090</td>
<td>-0.071</td>
<td>-0.106</td>
</tr>
<tr>
<td>4. Relationship with Foster</td>
<td>-0.126</td>
<td>-0.234**</td>
<td>-0.090</td>
<td>–</td>
<td>-0.040</td>
<td>-0.131</td>
</tr>
<tr>
<td>5. Youth Age</td>
<td>0.280**</td>
<td>0.034</td>
<td>-0.071</td>
<td>-0.040</td>
<td>–</td>
<td>-0.098</td>
</tr>
<tr>
<td>6. Cumulative Days in Care</td>
<td>-.002</td>
<td>.026</td>
<td>-.106</td>
<td>-.131</td>
<td>-.098</td>
<td>–</td>
</tr>
</tbody>
</table>

Note. *\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)
4.2 Model Testing

In order to test the full path model and identify the most appropriate and parsimonious model that fits the data appropriately, several steps were taken to identify one with the best model fit. This approach involved identifying paths that were non-significant and removing them from the model, with empirical considerations included (Kline, 2011). The first model included all direct and indirect effects between the exogenous variables (biological parent-child relationship, foster parent-child relationship, and the co-parenting relationship), the mediator variable (self-esteem), the outcome variable (delinquency) and two covariates of age and gender of child. Although gender was not found to be a significant covariate in the preliminary analyses, it was included based on literature supporting its association with delinquency levels. Each successive model involved removing the non-significant paths to develop the best fit model for the data.

The results are presented in a way to answer the research questions and hypotheses identified previously.

**Research Question:** To what extent does an adolescent’s reported relationship with a biological parent relate to levels of reported delinquency?

**Hypothesis 1:** It was hypothesized that higher quality biological parent-child relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

The first model (See Figure 1) included all direct and indirect paths from the exogenous variables to the mediator variable and dependent variable. The standardized estimate of the path from relationship with biological parent to delinquency was not significant in the model ($\beta = -0.155$, $p = .693$).
**Research Question:** To what extent does an adolescent’s reported relationship with a foster parent relate to levels of reported delinquency?

**Hypothesis 2:** It was hypothesized that higher quality foster parent-child relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

Again, the first model (see Figure 1) included all direct and indirect paths from the exogenous variables to the mediator variable and dependent variable. The standardized estimate of the path from relationship with foster parent to delinquency was not significant ($\beta = -0.270$, $p = .335$).

**Research Question:** To what extent does an adolescent’s perception of the co-parenting relationship between the biological and foster parent relate to levels of delinquency?

**Hypothesis 3:** It was hypothesized that higher quality co-parenting relationship scores would have a direct negative association with delinquent behaviors as reported by adolescents.

Again, the first model (see Figure 1) included all direct and indirect paths from the exogenous variables to the mediator variable and dependent variable. The standardized estimate of the path from co-parenting relationship to delinquency was not significant in the model ($\beta = -0.270$, $p = .335$).

**Research Question:** To what extent does an adolescent’s report of self-esteem mediate the associations between these three relationships and levels of delinquency?

**Hypothesis 4:** It was hypothesized that higher scores of self-esteem would mediate relationships between the three parenting relationships and delinquent behaviors.

This hypothesis was tested in three ways. First, mediation can be tested through path analyses in the overall model, through the evaluation of direct and indirect effects. Baron and Kenny (1986)
reported that a variable is said to mediate a relationship if it accounts for the relationship between a predictor and outcome variable. Furthermore, a variable can only be said to mediate the relationship if a previously significant relationship between the independent and dependent variable is no longer significant when the paths from the independent variable to the mediator and the mediator to the dependent variable are controlled. The overall model fit was evaluated to

$X^2 = 4.257, p = .119; CFI = 0.949; RMSEA = 0.078$

*Figure 2. Model 1. The first model built within AMOS included all direct and indirect paths, with biological parent-child relationship, foster parent-child relationship, and co-parenting relationship as exogenous variables, self-esteem as the mediator and delinquency as the outcome variable. Age and gender of child were included as covariates, based on a priori tests and empirical support ($n = 188$). Standardized regression coefficients were reported.

* $p < .05$, ** $p < .01$, *** $p < .001$. Significant paths are indicated in bold.*
Figure 3. Model 2. The second model built within AMOS removed the indirect paths from the exogenous variables to the outcome variable, delinquency. Age and gender of child were included as covariates, based on a priori tests and empirical support ($n = 188$). Standardized regression coefficients were reported $p < .05$, **$p < .01$, ***$p < .001$. Significant paths are indicated in bold.

determine the interrelationships between the variables included. Given the paths that were found to be significant and insignificant in the first model (see Hypotheses 1-3 above), following the steps previously outlined (Kline, 2011) direct paths were removed from the second model to determine if a mediating relationship may be present between foster parent-child relationship, self-esteem and delinquency, and assess overall fit to the data. Model fit indices were evaluated for this model ($X^2 = 5.622, p = .345; \text{CFI} = 0.986; \text{RMSEA} = 0.026$). Additionally, with the
direct paths removed, the path from the foster parent-child relationship to self-esteem approached significance ($\beta = -0.090, p = .056$).

The third model involved the removal of the paths from the biological parent-child relationship and co-parenting relationship to self-esteem, as they were not significant in the previous model ($\beta = 0.030, p = .646; \beta = 0.834, p = .227$). The relationship from foster parent–child relationship was also not significant in the second model, but it approached significance ($\beta = -0.090, p = .056$), and therefore was included in the third model. Model fit indices were evaluated and overall model fit greatly improved with the removal of these paths ($X^2 = 1.164, p = 0.559; CFI = 1.00; RMSEA = 0.000$). Additionally, the path from foster parent-child relationship to self-esteem became significant again ($\beta = -0.094, p = .042$), with a more positive relationship being associated with lower levels of delinquency. Given the significant increase in model fit indices and significant paths, this model was selected as the best fit of the data.

In summary, results of the final model indicated the foster parent-child relationship and delinquency are mediated by self-esteem of adolescents, through the indirect path (Li, 2011). The two other parental relationships, relationship with biological parent and the co-parenting relationship, were not found to significantly contribute to the overall model and therefore were not included as variables in the final model. Additionally, age was found to be the only significant covariate for the model.

### 4.3 Mediation

Baron and Kenny (1986) suggest the use of regression analyses to determine if a mediation relationship exists. Regression analyses were conducted to determine a basic connection between the identified independent variables of relationship with biological parent relationship with foster parent, and reported co-parenting relationship with the dependent
\(X^2 = 1.164, \ p = .559; \ CFI = 1.00; \ RMSEA = 0.000\)

*Figure 4.* Model 3. The third model built within AMOS removed the paths from biological parent-child relationship and co-parenting relationship. Age was included as a covariate, due to the significant path to delinquency (\(n = 188\)). Standardized regression coefficients were reported *\(p < .05\), **\(p < .01\), ***\(p < .001\). Significant paths are indicated in bold.

variable, delinquency. First individual simple regressions were completed with each independent variable and the outcome variable, delinquency. The result of the simple regression of the quality of the biological parent-child relationship was not significantly related to the outcome variable of delinquency, \(R^2 = .000, F(1,99) = 0.022, p > .05\). The result of the simple regression of the quality of the foster parent-child relationship on delinquency found it not to be a significant relationship, \(R^2 = .016, F(1,177) = 2.85, p > .05\). The result of the simple regression of the
quality of the co-parenting relationship on delinquency was not significant, $R^2 = .003$, $F(1,73) = 0.214, p > .05$.

Regression equations were also generated for the independent variables and the mediator variable. The result of the simple regression of the quality of the biological parent-child relationship was not significantly related to the identified mediator variable of self-esteem, $R^2 = .110$, $F(1,99) = 1.219, p > .05$. The result of the simple regression of the quality of the foster parent-child relationship on self-esteem was a significant relationship, $R^2 = .234$, $F(1,177) = 10.299, p < .05$, with a more positive relationship being associated with higher levels of reported self-esteem (lower levels of negative self-esteem). The result of the simple regression of the quality of the co-parenting relationship on self-esteem was not significant, $R^2 = .051$, $F(1,73) = 0.194, p > .05$. Multiple regression analyses were conducted to determine if including all of the relationships within one analysis equation would be predictive of delinquency levels. Again, none of the identified independent variables were found to be predictive of the outcome variable, delinquency, $R^2 = .021$, $F(3,63) = 441, p > .05$.

In regression analyses, only the quality of the relationship with the foster parent was found to be significantly related to the mediator, self-esteem, $R^2 = .234$, $F(1,177) = 10.299, p < .05$. As previously described, none of the regression equations between the independent variables and dependent variables were found to be significant: biological parent-child relationship on delinquency, $R^2 = .00$, $F(1,99) = 0.022, p > .05$; quality of the foster parent-child relationship on delinquency, $R^2 = .016$, $F(1,177) = 2.85, p > .05$; and quality of the co-parenting relationship on delinquency, $R^2 = .003$, $F(1,73) = 0.214, p > .05$. Finally, the mediator variable of self-esteem was significantly related to the outcome variable of delinquency, $R^2 = .317$, $F(1,186) = 20.803, p < .05$, with more negative self-esteem being associated with higher levels of delinquency. Based
on the steps outlined by Baron and Kenny (1986), it does not appear that the results of the regression analyses indicated a mediating relationship between the predictor variables, self-esteem and the outcome variable.

Despite the regression analyses not providing evidence of a mediating relationship, bootstrapping analyses also were conducted, as described in the methods section, to fully and thoroughly evaluate the potential for a mediating relationship. Furthermore, it has been reported that the Baron and Kenny (1986) approach to evaluating mediation may not be the best method for testing mediation in all situations (Shrout & Bolger, 2002). More specifically, in instances where the effect size and sample size are thought to be small, bootstrapping may be a more appropriate method for testing mediation. Bootstrapping methods were employed for the three parenting relationships (biological foster parent-child relationship, foster parent-child relationship, and co-parenting relationship), the mediator variable, self-esteem, and outcome variable of delinquency. Self-esteem was not found to mediate the relationship with biological parent and delinquency with a 95% bias-corrected and accelerated CI [-.209, .3727]. Self-esteem was found to mediate the association between relationships foster parents and delinquency with a 95% bias-corrected and accelerated CI [-.7172, -.1294]. Additionally, the normal theory tests for indirect effects of the independent variable on the dependent variable through the proposed mediator was also significant ($p = .0078$). Self-esteem was not found to mediate the co-parenting relationship and delinquency with a 95% bias-corrected and accelerated CI [-2.970, .4501].
CHAPTER FIVE

DISCUSSION

This study was conducted to analyze the interconnections between three primary parenting relationships, relationship with biological parent, relationship with foster parenting, and the co-parenting relationship, with the outcome variable of delinquency for adolescents in foster care. Additionally, self-esteem was tested as a mediator between the relationships and delinquency. The goal of the study was to determine how these various relationships, self-esteem, and delinquency work together within one conceptual model. Additionally, self-esteem was tested as a mediator in the large conceptual model, as well as through individual analyses to determine how self-esteem may mediate these associations. Previous research has indicated that parental relationships can have a significant impact on adolescents’ behaviors, especially for youths in foster care (Haskett et al., 2006; McWey et al., 2010; Moyers et al., 2006; Ryan et al., 2008). Furthermore, it has been found that families with a more harmonious co-parenting relationship are associated with better outcomes for children involved in the foster care system (Linares, 2006). Additionally, self-esteem has been shown to be related to both adolescents’ parental relationships (Farruggia et al., 2004; Parker et al., 2004, Paterson et al., 1995) and delinquency (Barry et al., 2007; Donnellan et al., 2005).

Ecological theory proposes the analyses of multiple external environments that can impact outcomes for individuals (Brofenbrenner, 1986). Based on ecological theory, the research questions in this study were as followed:

1. To what extent does an adolescent’s reported relationship with a biological parent relate to levels of reported delinquency?
2. To what extent does an adolescent’s reported relationship with a foster parent relate to levels of reported delinquency?

3. To what extent does an adolescent’s perception of the co-parenting relationship between the biological and foster parent relate to levels of delinquency?

4. To what extent does an adolescent’s report of self-esteem mediate the associations between these three relationships and levels of delinquency?

Overall the findings in this study did not support all of the hypotheses. The results from the first conceptual model did not support that the relationships with biological or foster parents and the co-parenting relationship were significantly related to delinquency levels for adolescents in foster care (Hypotheses 1-3). When removing the direct effects of these relationships, results indicated that the relationship with biological parent and the co-parenting relationship continued to display an insignificant connection to delinquency. Final analyses revealed that the relationship with the foster parent was related to delinquency, as reported by adolescents, and this relationship was mediated by adolescents’ report of self-esteem (Hypothesis 4).

Furthermore, age was the only covariate found to be significant in predicting levels of delinquency in youths. In the following sections, each of these relationship factors are further explored. Attention is given to the design and methodology of the present study, which may have contributed to the lack of significant results for two of the parental relationships. Additionally, limitations of the study are discussed as well as areas for future research.

5.1 Parent-Child Relationships

For this study, relationship with biological parents was not predictive of delinquency of adolescents in foster care. Furthermore, this relationship was also not significantly correlated with reported self-esteem levels of adolescents in foster care. With the dynamic nature of
families involved in the foster care system, regular contact with biological parents may change across time (Moyers et al., 2006). Thus, it may be that the time point when data were collected in this study was not a period that is reflective of the overall relationship and contact adolescents have with their biological parents. This also reinforces previous studies that promote a more proactive approach to maintaining consistent contact with biological parents and other family members for children and adolescents in the foster care system (McWey & Mullis, 2004; McWey et al., 2010; Moyers et al., 2006). Positive, securely attached relationships with biological parents have been shown to be a protective factor against delinquent behaviors (Salzinger et al., 2007; Simsek, Erol, Öztop, & Münir, 2007). Therefore, the lack of significant findings in this study promote the need for continued investigation of the role that relationships with biological parents for adolescents in foster care may play as a potential protective factor. Also, it is important to note that the relationship with biological parents may serve as a protective or also a risk factor, depending on the nature of the relationship (Vuchinich et al., 2002). Additionally, understanding relationships beyond that with the biological parent, such as relationships with other family members, may also prove significant in improving outcomes for adolescents in foster care (Moyers et al., 2006).

While relationship with biological parents was not found to be significantly related to delinquency levels for adolescents, the quality of relationships with the foster caregivers was found to be significantly related to delinquency levels, indirectly through self-esteem. Egeland and colleagues (2002) found that specific attributes of the parent-child relationship, such as alienation, relates to increased risk for anti-social behavior for adolescents. Additionally, Vuchinich and colleagues (2002) specifically found that more positive communication between foster parents and adolescents were associated with lower levels of externalizing behaviors of
youths. Furthermore, more negative communication and more conflictual relationships were associated with higher levels of externalizing behaviors for young adolescents. Given that adolescents in foster care are already at risk for involvement in delinquent behavior, it appears critically important that positive relationships in foster families are promoted. It may be that when relationships with foster families are seen as negative and conflictual, adolescents may latch onto peer relationships and youths in foster care may be associated with individuals who are involved in delinquent behavior. Furthermore, adolescents may perceive that relationships with caregivers are not permanent and this perception of instability may lead to involvement in delinquent behavior (Ryan et al., 2008). Therefore, promoting positive relationships with caregivers should be seen as a critical aspect of case planning for adolescents in foster care.

Additionally it has been found that the mental health needs of parents, either biological or foster, can impact the parenting behaviors of these caregivers. Furthermore, these parenting behaviors can impact the quality of relationships and delinquent behavior of adolescents (Haskett & Willoughby, 2007). It may be that specific parenting practices by biological and foster parents should be examined, in addition to the quality of relationships reported by adolescents to further understand the connection to delinquency for adolescents in foster care. Also, the stability of caregiver relationships has also been shown to be positively associated with outcomes for adolescents involved in the child welfare system (Haskett et al., 2006).

**5.2 Co-Parenting Relationships**

One of the purposes of this study was to determine if a more harmonious co-parenting relationship between biological and foster parents could serve as a protective factor. While it was hypothesized that a collaborative relationship may be beneficial for adolescents’ adjustment, it has been proposed by some that a stronger attachment and more frequent visitation with
biological parents can create loyalty binds and disturbances of conduct for youths in care (Leathers, 2003). This study did not find that a reported positive relationship between biological and foster parents was related to delinquency levels in adolescents in foster care. It is important to note that the measure in this study was a dichotomous response item that asked adolescents if their foster and biological parents got along. One can understand that a co-parenting relationship within the context of foster care is a complex relationship. Linares and colleagues (2010) developed a Co-Parenting Practices Scales that is specifically designed to assess the co-parenting relationship between biological and foster parents. Utilizing a measure that is specifically designed for this unique population in future research may help to more thoroughly understand how the co-parenting relationship may impact adolescents and their behaviors.

5.3 Self-Esteem

Previous research has shown a connection between a history of maltreatment, self-esteem, and negative behaviors for children (Kim & Cicchetti, 2004). This study found that self-esteem was significantly related to delinquency levels of adolescents. Furthermore, it was found that self-esteem mediated the association between relationships with foster parent and delinquency levels for youths and therefore was consistent with previous research (Chambers et al., 2000; Paterson et al., 1995). These findings suggest that the connection with a foster parent can influence the self-esteem levels of adolescents in foster care. Furthermore, these relationships with caregivers can then in turn influence the potential for delinquent behavior in adolescents. This is particularly important for adolescents in foster care who may have experienced multiple placements or transitions (Ryan & Testa, 2005), and therefore developing connections with caregivers may be difficult.
Self-esteem, however, was not found to be significantly related to the relationship with biological parent or to the co-parenting relationship between biological and foster parents. It may be that the conceptual model designed for this study was inaccurate in regards to the direction of associations between relationships, self-esteem, and delinquent behavior. Kools (1997) found that placement in the foster care system can greatly affect adolescents’ self-esteem, particularly due to the issues of stigmatization and feeling devalued by others. It may be that the self-esteem of adolescents, possibly even diminished self-esteem at earlier ages, may impede adolescents from being able to maintain consistent, healthy relationships with biological or foster parents. Therefore, assessment and intervention prior to adolescent years may be particularly important for youths in foster care.

5.4 Implications for Marriage and Family Therapists

The risk for adolescents in foster care to be involved in delinquent behavior has been well-established (Bender, 2010; Egeland, 2002; Ryan et al., 2008; Williams et al., 2010). This study supports that both relationships with caregivers and adolescents’ reports of self-esteem are related to the manifestation of delinquent behavior in these youths. Therefore the implications for intervention services are evident. These findings suggest that an early intervention that involves both individual and family services may be useful in promoting an understanding of factors that may lead to delinquent behavior for youths in care. Egeland and colleagues (2002) suggested that interventions that promote a sense of connection and reciprocity between adolescents and caregivers may help to promote more prosocial behaviors in youths. This study did not claim to be ecologically comprehensive, as it did not directly test macrolevel variables. However, the findings, specifically that parent-child relationships continue to show importance in the behaviors of adolescents. These findings can inform the importance of promoting positive
relationships with caregivers, as well as providing early intervention therapeutic services for internalizing behaviors, specifically self-esteem, that may go unnoticed. This has specific clinical implications for marriage and family therapists, such as promoting the use of family therapy to improve the caregiver-child relationship.

As shown in the current study, strengthening the relationship between adolescents and their foster parents may help to decrease the risk of involvement in delinquent behavior. Smith and colleagues (2001) found that adolescents were significantly more likely to experience a placement disruption, due to behavioral concerns, and Treatment Foster Care (TFC) could be used to reduce this risk by improving the relationship between adolescents and their caregivers. Capps (2012) proposed the use of filial therapy as a way to strengthen the adolescent-parent relationship with foster parents, as a means for addressing behavioral concerns. These filial therapy techniques specifically focus on improving empathy and communication between adolescents and their foster parents. The use of these adolescent-focused techniques by marriage and family therapists to improve the parent-child relationship may then reduce adolescents’ participation in delinquent acts, given the findings from the current study.

Whittaker (1985) stressed the importance of providing family services to youths, beyond individual treatment. Several studies have reported the effectiveness of family intervention services for the treatment of adolescents involved in delinquent behavior (Bluestone, 2004; Chamberlain, Leve, & DeGarmo, 2007; Henggeler & Sheidow, 2012; Turner & Macdonald, 2011). A widely used intervention for adolescents involved in delinquent behavior is the Multidimensional Treatment Foster Care (MTFC), which has shown to be effective internationally, as well as in the United States (Westermark, Hansson, & Olsson, 2011). The treatment involves the collaboration between adolescents’ parents, schools, and social service
agencies. Youths are placed in a structured, therapeutic home and services are implemented that help to improve relationships with caregivers, as well as transitions youths back to their biological families homes. The collaborative efforts of biological parents, foster parents, family therapists and social workers are found to reduce ratings of delinquent behaviors in youths, as well as resistance to treatment (Chamberlain et al., 2007). Henggeler and Sheidow (2012) further proposed that the mechanism of change for adolescents in a variety of evidence-based therapeutic interventions was specifically through improving familial relationships.

5.5 Limitations

Several limitations exist for this study. First, the sample is limited to those recruited through the National Survey of Child and Adolescent Well-Being (NSCAW) research team. While the analysis of a secondary data set has its strengths, in that it allowed access to a large, representative sample, it also has limits. The sample of the current study was narrowed to include only adolescents who were between the ages of 11 and 17 who were in long-term foster care. As a result, this reduced the sample size to only 188 adolescents. This impedes the generalizability of this study to all youth in foster care. Although these findings may represent some youths in LTFC, it may not be representative of all youths involved in the child welfare system. Also, it is important to note that this sample only measured the perspective of the adolescents’ relationships with biological mothers. Future studies may benefit from also included relationships with fathers.

Secondly, the variables chosen for this study were limited to those measures and questions utilized in the interviews with the participants of the NSCAW dataset. The range of the number of items of the measures used to assess the parent-child relationships and co-parenting relationships was between one and three items. These few items may not fully capture the complex phenomena of these relationships. Therefore, the use of different measures with
adolescents may provide further insight to the importance of relationships for those in the foster care system. Linares and colleagues (2010) developed the Co-Parenting Practices Scale (CPPS) drawing from the Family Functioning Scale, Family Adaptability and Cohesion Scale, and the Coparenting Scale and generated questions on a Likert Scale. Three subscales were derived based on the factors: support and flexibility (12 items $\alpha = .93$), shared communication (11 items; $\alpha = .90$) and conflict and triangulation (7 items, $\alpha = .87$). The overall scale score was also found to be highly reliable and have good internal consistency ($\alpha = .92$). The Parent Child Relationship Inventory (PCRI; Gerard, 1994) is a 78-item scale that assesses the parent-child relationship, completed by the parent. The PCRI generates five subscale scores: satisfaction with parenting, communication, involvement, limit setting, and autonomy. Internal consistency is found to be moderately high, and alpha levels range from .76 to .88, and it has been found to be reliable in longitudinal studies (Coffman, Guerin, & Gottfried, 2006). Measures with higher psychometric properties may be better able to extract these complex relationships and provide a better understanding of these interconnections.

Several studies have indicated a longitudinal impact of the perceived parent-child relationship on levels of delinquency (Patterson, DeBarsyhe, & Ramsey, 1989; Stice & Barrera, 1995). This study involved the examination of cross sectional data from Wave 1 of the NSCAW dataset and therefore longitudinal implications could not be inferred from this study. Researchers have encouraged the use of longitudinal designs to examine behavioral patterns across time (Baskin & Sommers, 2011; Leathers, 2002; Ryan et al., 2007). Understanding how parental relationships impact long-term outcomes for adolescents in the foster care system can be beneficial. Furthermore, it has been highlighted that contact and relationships with biological parents and caregivers can change across time and therefore, regular reassessment is important in
understanding the impact on adolescents (Moyers et al., 2006). More specifically, understanding long-term effects can be particularly helpful, given youths being at-risk for being involved in adult criminal behavior when participating in delinquent acts (Dutton & Hart, 1992; Krinsky, 2010). Data collection in the future that will allow for both more valid measures and also the collection of data across time could be beneficial as this area of research continues to be investigated.

Additionally, there were some potential limitations related to analyses in the current study. This researcher chose to utilize structural equation modeling based on its ability to analyze all components of the model concurrently. Hierarchical linear regression (HLM) is used to include various contextual factors that may impact the results of a study. Given the unique context of foster care, and various factors that may impact the relationship between independent variables and dependent variables, it may be beneficial to use HLM as the analysis of choice, or in addition to SEM, to determine the best fit of the data and also produce the most accurate results in future studies. For example, policies impacting the child welfare system vary from state to state and potentially from county to county among various states. Therefore it may be important to include a nested variable that considers geographic location and the policies established in those areas. This may also allow for more contextual factors, beyond those identified in this study, to be included in analyses.

5.6 Future Research

It has been shown that adolescents who participate in antisocial or delinquent behavior may have underlying mental health concerns, such as depression, substance abuse, and posttraumatic symptoms (Southerland, Casanueva, & Ringeisen, 2009). This study only addressed delinquent behaviors and future studies could benefit from understanding how mental
health factors may relate to externalizing behaviors, such as delinquency, combined with the protective factors of relationships with parental figures. Furthermore, there may be other contextual factors not included in this study, such as income, services provided, and neighborhood factors, that may contribute to delinquency levels, as well as influence parent-child relationships.

While self-report measures can be beneficial in research with adolescents, it may be beneficial to include multiple perspectives in future studies. Research has shown the reports from various informants can produce different results (Barr-Anderson et al., 2011; Hazen et al., 2009; Keijser et al., 2011; Laible, Carlo, Torquati, & Ontai, 2004). The perception of parent-child relationships can vary greatly between child and parent-report as well as the perception of other family relationships, such as sibling and parental relationships (Gaylord, Kitzman, & Cole, 2003; Noller, Seth-Smith, Bouma, & Schweitzer, 1992; Ohannessian, Lerner, Lerner, & von Eye, 2000). Leathers (2002) emphasized the importance of including youths’ perspectives of relationships in future studies. Additionally, it has been shown that adolescents and parents can differ in their reports of adolescents’ externalizing and delinquent behavior (Rosenthal & Curiel, 2006). In fact, parental figures tend to report more positive parent-child relationships (Gaylord et al., 2003; Ohannessian et al., 2000) and lower levels of adolescent externalizing and delinquent behavior compared to adolescent report (Rosenthal & Curiel, 2006). Given the developmental trend for adolescents and parents to have varying perceptions and the important differences among those perceptions, it may be helpful to include multiple perspectives of caregivers and adolescents in future studies (Salbach-Andrae, Lenz & Lehmkuhl, 2009). Research has conflicted as to whether adolescent report or caregiver report is more accurate in regards to the report of adolescents’ behaviors (Rosenthal & Curiel, 2006; Salbach-Andrae et al., 2009).
Utilizing shared method analyses such as Actor-Partner Independence Model (Cook & Kenny, 2005) may be able to provide a more accurate representation of relationships and delinquency of adolescents.

This study was restricted to the analysis of parental relationships as protective factors for adolescents in foster care. It is important to consider other protective factors that may be associated with a decreased risk of delinquency. Ryan and colleagues (2008) found that youths with participation in religious organizations were less likely to be involved with the juvenile justice system. Other important protective factors may be able to reduce the risk for involvement in delinquent behavior for adolescents in foster care. Additionally, it should also be considered that these protective factors may mediate or moderate the association with the parental relationships, and therefore other types of analyses may be warranted to more fully understand these connections.

Furthermore, it has already been stated that this study was limited in its use of ecological theory. The current study supported the importance of promoting the foster parent-child relationship for adolescents, as it can potentially serve as a protective factor for adolescents in foster care. When studying families with the child welfare system, it is important to understand policy implications, as policy can greatly impact the outcomes for these families. Researchers in the future should consider the relevance and importance of policy changes when designing studies that investigate families involved in the child welfare system.

5.7 Conclusion

The current study used a national dataset to explore the interconnections between three significant parental relationships, the biological parent-child relationship, foster parent-child relationship, and co-parenting relationship, and delinquency for adolescents in long-term foster
care. Self-esteem was also explored as a mediator between these relationships and delinquency. Overall, the hypothesized paths were not significant in the full conceptual model. The foster parent-child relationship was found to be significantly related to delinquency reports of adolescents. Additionally, self-esteem was found to mediate this relationship. Age also emerged as a significant covariate in the model indicating this mediating relationship. Important clinical implications and proposals for family interventions were provided. Furthermore, recommendations for future research to expand the literature for this particular population and understanding protective factors against the risk for delinquency were described.
APPENDIX A

IRB APPROVAL

Florida State University

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-7742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 06/28/2012
To: Heather Farineau
Address: 1401
Dept.: FAMILY & CHILD SCIENCE
From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Association Between Relationships with Biological and Foster Parents, Self-Esteem and Delinquency for Adolescents in Foster Care

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 06/13/2013. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 06/12/2013 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to ensure that the project is being conducted in compliance with our institution and with DHHS regulations.

This instrument has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Lenora McWay Chair
HSC No. 2012.0183

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BIOGRAPHICAL SKETCH

Heather Farineau is originally from Ft. Pierce, FL. She earned her Bachelors of Science degree from The Florida State University in Psychology in 2005, and completed her Masters of Social Work in 2007, also at Florida State University. Heather worked in the field of child welfare in Leon County, FL for several years, as both a case manager and administrator, following the completion of her Master’s degree. Heather entered the doctoral program in Marriage and Family Therapy at The Florida State University in Fall of 2009, and advanced to clinical candidacy status in November of 2011. While at FSU, she has published articles in the area of child welfare, specifically focused on protective factors for adolescents in the foster care system.

Heather has been a Graduate Teaching Assistant, including primary instructor responsibilities, in both in-person and online courses. Additionally, Heather has been a clinician in the community, as well as served as an Executive Board member for the Tallahassee Association for Marriage and Family Therapy. Heather has also earned several scholarships and awards, and was inducted into the Glenn Society in 2012. Her program of research focuses on protective factors for adolescents in foster care, parent education, and best practices in child welfare. Her future plans are to continue research within the field of child welfare, specifically understanding ways to improve outcomes for families involved in the foster care system, and use this research for both clinical and policy implications.