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# A Developmental Systems Approach to Exploring the Plasticity and Diversity of Teen Childbearers' Parenting Behaviors

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A DEVELOPMENTAL SYSTEMS APPROACH TO EXPLORING THE PLASTICITY  
AND DIVERSITY OF TEEN CHILDBEARERS' PARENTING BEHAVIORS

by

Andrea N. Gromoske

A Dissertation Submitted in  
Partial Fulfillment of the  
Requirements for the Degree of

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December 2013

ABSTRACT  
A DEVELOPMENTAL SYSTEMS APPROACH TO EXPLORING THE PLASTICITY  
AND DIVERSITY OF TEEN CHILDBEARERS' PARENTING BEHAVIORS

By

Andrea N. Gromoske

The University of Wisconsin-Milwaukee, 2013  
Under the Supervision of Professor Joshua P. Mersky

Introduction: Many empirical studies indicate that teen childbearers, in comparison to adult childbearers, are more likely to exhibit maladaptive parenting behaviors, including low responsiveness, harsh discipline, and child maltreatment. Yet, it is unclear whether teen childbearers are likely to engage consistently in poor parenting *over time*, why they may continue to engage in poor parenting, and which teen childbearers are most likely to engage in poor parenting persistently. Methods: This study used secondary data to investigate the person-in-context, temporality, plasticity, and diversity of teen childbearers' parenting behaviors using cross-sectional regressions, latent growth curve models, and joint longitudinal cluster analysis. Results: Analyses conducted in Paper 1 found a temporary, but not a lasting, relation between teen childbearing and aggressive discipline. Paper 2 used latent growth curve models to compare the developmental changes of teen and adult childbearers' aggressive discipline and found that their rate of change did not differ, but rather that teen childbearers were more likely than adult childbearers to use aggressive discipline at young child ages. The study also found that the effect of domestic violence, but not social support or mental health, on aggressive discipline varied between teen and adult childbearers. Paper 3 identified three subgroups of teen childbearers that followed different

joint-patterns of adaptive and maladaptive parenting over time, and that high child emotionality, low household income, and high parenting stress were related to the least adaptive parenting pattern. Conclusions: Teen childbearers' parenting changes as their children age, and there is relative plasticity in teen childbearers' parenting. In addition, the results indicate that teen childbearers' parenting behaviors are diverse - diverse in comparison to adult childbearers' and within the population of teen childbearers. Finally, the papers demonstrate the need to consider the teen childbearer in context. Taken together, the results suggest that intervention programs, preferably those that occur prior to the child's birth and that extend through toddlerhood, might prevent the emergence of poor parenting behaviors. Nevertheless, screening and assessment of teen childbearers should be comprehensive in order to best discern which teens are most in need of intervention and in what domains.

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## **CHAPTER 1**

### **Introduction**

Many empirical studies indicate that teen childbearers, in comparison to adult childbearers, are more likely to exhibit maladaptive parenting behaviors, including low responsivity (Barratt & Roach, 1995; Culp, Culp, Osofsky, & Osofsky, 1991; Mollborn & Dennis, 2010; Garcia Coll, Hoffman, & Oh, 1987; Pommerleau, Scuccimarri, & Malcuit, 2003), harsh discipline (Connelly & Straus, 1992; Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010), and child maltreatment (Lee & Goerge, 1999; Mersky, Berger, Reynolds, & Gromoske, 2009). Yet, it is unclear whether teen childbearers are likely to engage consistently in poor parenting *over time*, why they may continue to engage in poor parenting, and which teen childbearers are most likely to engage in poor parenting persistently. Filling this gap in knowledge would help stakeholders understand when and with whom to intervene in order to promote family stability and child development.

The developmental systems theory of human development provides a way of thinking about how teen and adult childbearers develop in their parenting. The theory has four defining features: (1) a person-in-context view with reciprocal interactions among ecological levels, (2) temporality, (3) relative plasticity, and (4) diversity (Lerner, 2006). From a person-in-context view, parenting is influenced by transactions between multiple factors and processes at the individual, family, neighborhood, and societal levels. Temporality connotes that the passage of time must be taken into account when thinking about how people develop. Relative plasticity is the concept that a person's behavior/development has the potential to change and that change within the person may vary across time; nevertheless, plasticity is not limitless and the degree of change possible may vary across the life span because of interactions between the individual and his/her context. Finally, diversity refers to the possibility that development will vary across individuals (inter-individual) and groups (inter-

group).

These ideas have been applied to understand development in the parenting role (Lerner, Rothbaum, Boulos, & Bastellino, 2002). The theory implies that parenting is influenced by connections across multiple levels of human ecology, may change over time and vary in the degree to which it may change intraindividually, and may vary interindividually across individuals and groups. It follows that both teen and adult childbearers' parenting would be influenced by their own development, along with reciprocal interactions with their child and factors at higher ecological levels (e.g., family, neighborhood). Furthermore, one would expect that their parenting would change over time (temporality/intraindividual plasticity), and that it may vary between individuals and between childbearing groups over time (interindividual/inter-group diversity).

Indeed, empirical research with *adult* parents demonstrates that parenting is affected by reciprocal parent-child interactions. For example, several investigators found that child externalizing behavior was related to a mother's use of spanking and vice versa (Berlin et al., 2009; Maguire-Jack, Gromoske, & Berger, 2012; Gromoske & Maguire-Jack, 2012). In addition, variation in parenting has been linked to factors at multiple levels of human ecology, including household income, family functioning, and community/neighborhood safety (e.g., Day, Peterson, & McCracken, 1999; Mersky, et al., 2009; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004). Likewise, research indicates that parents' own development, such as the parenting behaviors they experienced as children and their adolescent adjustment (e.g., Kerr, Capaldi, Pears, & Owen, 2009; Chen & Kaplan, 2001), is related to the parenting behaviors in which they engage. A handful of other studies have also shown that parents change the types and amounts of parenting behaviors they engage in over

time (Kim, Pears, Fisher, Connelly, & Landsverk, 2010; McNally, Eisenberg, & Harris, 1991; Socolar, Savage, & Evans, 2007; Vittrup, Holden, & Buck, 2006).

Likewise, research on the parenting behaviors of *teen* childbearers indicates that factors at multiple levels of the ecology affect their parenting behaviors (see Moore & Brooks-Gunn, 2002), that their own development may be related to their parenting behaviors (see Moore & Brooks-Gunn, 2002), and that teen childbearers differ from adult childbearers in their parenting behaviors (Barratt & Roach, 1995; Connelly & Straus, 1992; Huang & Lee, 2008; Lee, 2009; Lee & Goerge, 1999; Lee & Guterman, 2010; Mersky, et al., 2009; Mollborn & Dennis, 2010; Pommerleau, Scuccimarri, & Malcuit, 2003). Yet, it is uncertain as to how and why teen and adult parenting differs. The developmental systems ideas of temporality, plasticity, and diversity may help to understand any differences.

On the one hand, it is possible that teen childbearers, in comparison to adult childbearers, will continue to engage in poorer parenting behaviors over time because teen childbearers share certain stable characteristics that increased their likelihood for early childbearing. These same characteristics may also consistently increase their likelihood for using harsher forms of discipline independent of how the mother or child develops over time. If differences between teen and adult childbearers remain distinct over time, this would imply that the parenting behaviors of teen childbearers have less relative plasticity.

On the other hand, it is possible that the parenting behaviors of teen childbearers will become similar to that of adult childbearers over time as teens develop and gain additional childrearing experience. Adolescents' emotion-regulation and cognitive processing are still slowly developing as they enter early adulthood (Albert & Steinberg, 2011). As an adolescent mother ages, her parenting may improve because of her development in judgment

and decision-making, leading her parenting to be more alike with that of adult childbearers. Furthermore, teen childbearers may change their parenting behaviors over time as they gain additional childrearing experience. If the parenting behaviors of teen childbearers become similar to that of adult childbearers, this would imply that the parenting behaviors of teen and adult childbearers have comparable plasticity.

Yet, while teen childbearers may or may not continue to engage in greater amounts of poor parenting behaviors compared to adult childbearers, there is likely to be heterogeneity in the parenting behaviors within groups of teen childbearers. As with most human behavior, one would expect that not all teen childbearers would engage in poor parenting behaviors, and if they did, not all would engage in high amounts. Identifying subgroups of teen childbearers that follow different patterns of parenting over time would demonstrate that there is inter-individual diversity.

Furthermore, the plasticity and diversity of teen childbearers' parenting behaviors may be related to contextual factors. The realization that risk and protective factors impinge on a teen childbearer's likelihood of adopting developmentally appropriate parenting behaviors leads to two implications. First, statistical inferences will be enhanced to the extent that models control for factors such as race or child gender that may confound a relation between maternal age and parenting behaviors. Second, identifying malleable contextual factors that contribute to variation in the plasticity and diversity may help in tailoring and targeting parenting interventions.

The current study answered three research questions that attempted to investigate the person-in-context, temporality, plasticity, and diversity of teen childbearers' parenting behaviors in order to better understand: (a) whether teen childbearers are likely to engage

consistently in poor parenting behaviors over time; (b) what factors may explain this consistency in order to discern the effects attributable to parent age relative to other factors; and (c) who in the population of teen childbearers may be most at risk for engaging in maladaptive patterns of parenting. Three studies will address the following research questions:

(1) Does teen childbearing have an enduring association with psychologically and physically aggressive discipline after accounting for other risk factors? Analyses will indicate whether current-teen childbearers are more likely to engage in maladaptive parenting behaviors than adult women who were previously teen childbearers or women who delayed childbearing until adulthood.

(2) Do the psychologically and physically aggressive discipline trajectories (i.e., developmental growth or decline) of teen and adult childbearers differ; are malleable, time-varying factors related to mothers' use of aggressive discipline over time; and do the effects of the malleable factors vary by teen childbearing status? Longitudinal data will be used to compare teen to adult childbearers over time, thereby elucidating whether teen childbearers' parenting behaviors follow a different trajectory than adult childbearers, and determine whether any associations between aggressive discipline and certain malleable, time-varying factors vary between teen and adult childbearers.

(3) What are the longitudinal joint-patterns (i.e., joint trajectories) of teen childbearers' verbal engagement and use of spanking, and what stressors are associated with different parenting patterns? This question identifies subgroups of teen childbearers who follow similar patterns of parenting, and examines stressors that may differentiate the subgroups; this will increase understanding about whether teen childbearers are likely to

engage consistently in poor parenting behaviors over time, why they may or may not do so, and who in the population of teen childbearers may be most likely to follow risky patterns of parenting.

In order to answer the research questions identified above, I used several different analytical approaches with two secondary datasets: the Fragile Families and Child Wellbeing Study (FFCW) and the National Survey of Child and Adolescent Wellbeing (NSCAW). The FFCW is a sample of nearly 5,000 children and their families, with an oversample of “fragile” families, or children born to unmarried, low-income parents. FFCW collected data from families at five time points: when children were born and at ages 1, 3, 5, and 9. Parents provided information about parenting behaviors, family and household characteristics, child development and functioning, caregiver physical and mental health, and neighborhood characteristics through telephone interviews and in-home visits. The NSCAW is a sample of approximately 5,000 children and their families who were the subject of a child maltreatment investigation by Child Protective Services (CPS). The families were followed for five years after baseline assessments, at 18-, 36-, and 59-96 months. NSCAW collected data from primary caregivers, children, caseworkers, and teachers on a range of child, caregiver, family, and CPS case characteristics.

In order to answer the first research question, I used data from FFCW to conduct a series of bivariate and multivariate analyses examining relations between teen childbearing and psychologically and physically aggressive discipline at child age 3. The analytic approach focused on specifying groups of conceptually different types of teen childbearing based on their age at first-birth and age at the birth of the focal child in order to discern temporary or enduring relations with aggressive discipline. First, I compared mothers who

were teens at the birth of the focal child (current-teen childbearers) to mothers who were adults at the birth of the focal child (current-adult childbearers). A significant difference, in which current-teen childbearers had a larger regression coefficient than current-adult childbearers, would indicate that bearing a child while a teen increases the likelihood of engaging in aggressive discipline—at least temporarily. The second model disaggregated the childbearing groups by comparing current-teen childbearers (teen childbearer with the focal child), prior-teen childbearers (teen childbearer with a prior birth but not the focal child), and never-teen childbearers. Comparing these groups would determine whether relations between teen childbearing and aggressive discipline were temporary or enduring.

To answer the second research question, I used data from NSCAW to construct a series of latent growth curve models to analyze how teen and adult childbearers' use of psychologically and physically aggressive discipline changed over time (i.e., discipline trajectories), controlling for child gender and maternal race. The analyses also investigated whether mothers' experience of domestic violence, their satisfaction with social support, and their mental health over time might explain any variability in discipline over and above the average developmental discipline process. The analyses further examined whether any relations between time-varying factors (domestic violence, social support, and mental health) and aggressive discipline varied by teen childbearing status.

Finally, to answer the third research question, I used data from FFCW to conduct joint-longitudinal cluster analysis to identify subgroups of teen childbearers who followed similar longitudinal patterns of spanking and verbal engagement over time. These subgroups indicate the degree of change (plasticity) and the inter-individual diversity of teen childbearers' parenting behaviors. The analyses also tested whether certain stressors such as



household income, parenting stress, and child emotionality differentiated the subgroups.

Results from the three papers are summarized in a concluding section. Using the developmental systems perspective, the conclusion discusses how the concepts of person-in-context, temporality, plasticity, and diversity apply to understanding teen childbearers' parenting behavior. The implications of the study for research, practice, and policy are discussed.

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## **CHAPTER 2**

### **Teen Childbearing: A Temporary or Enduring Relation with Aggressive Discipline?**

### **Abstract**

Despite research indicating that early childbearing is associated with aggressive discipline, it is unclear whether the parenting behaviors of teen childbearers are temporary or enduring. It is possible, on the one hand, that teen childbearing may be related to harsh discipline, regardless of whether the parent is currently an adult or a teenager. This relation would suggest an enduring association of teen childbearing with aggressive discipline. On the other hand, teen childbearing may be related to harsh discipline only if the parent is currently a teen, and that these parenting behaviors fade over time. This study uses data from the Fragile Families and Child Wellbeing study (FFCW;  $N = 2,908$ ), to examine relations between teen childbearing and psychologically and physically aggressive discipline at child age 3. Results from bivariate and multivariate analyses were mixed. Bivariate results indicated a temporary and lasting relation between teen childbearing and psychologically aggressive discipline, but in multivariate analyses, neither a temporary nor a lasting relation was found. Both bivariate and multivariate analyses showed a temporary relation with physically aggressive discipline, but evidence of an enduring relation was less robust. Implications for when to intervene with teen mothers and what types of parenting programs may be most beneficial are discussed.

Aggressive disciplinary behaviors, such as corporal punishment, spanking, and threatening a child, have been related to less adaptive child outcomes (Durrant, 2008; Gershoff, 2002; Gromoske & Maguire-Jack, 2012; Maguire-Jack, Gromoske, & Berger, 2012; Paolucci & Violato, 2004). One risk factor that may be important to identifying families in need of intervention is the mother's age at childbirth. Research has indicated that teen mothers, in comparison to adult mothers, are more likely to use harsh and abusive discipline (Connelly & Straus, 1992; Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010; Mersky, Berger, Reynolds, & Gromoske, 2009). Nevertheless, the literature has failed to explore whether the relation between teen childbearing and aggressive discipline is temporary or enduring. It is possible that teen childbearing may only be a risk factor for aggressive discipline for a limited period of time, and that these behaviors may fade due to maturation or childrearing experience. Thus, further research into the etiology of aggressive discipline is needed to produce evidence that can be used to inform prevention and intervention strategies.

### **Aggressive Discipline**

Discipline refers to the methods, techniques, and strategies parents use to discourage inappropriate behavior and gain compliance from the child (Locke & Prinz, 2002). One type of disciplinary behavior that has received considerable scholarly attention is physically aggressive discipline (i.e., corporal punishment). Physically aggressive discipline has been defined as, "the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correction or control of the child's behavior" (Straus & Kantor, 1994, p. 4). It can include acts such as spanking a child on the bottom with a bare hand, slapping, pinching, or hitting the child with a hard object. Studies estimate that the use



of physical punishment exceeds 80% among U.S. parents (Graziano, Hamblen, & Plante, 1996; Straus & Stewart, 1999). Physically aggressive discipline has been linked to increased child externalizing and internalizing behavior problems (Durrant, 2008; Gershoff, 2002; Gromoske & Maguire-Jack, 2012; Maguire-Jack, Gromoske, & Berger, 2012; Paolucci & Violato, 2004; Turner & Finkelhor, 1996; Turner & Muller, 2004). In addition, physically aggressive discipline is associated with increased risk for Child Protective Services (CPS) involvement and child maltreatment (Lee, Grogan-Kaylor, & Berger, In press).

Similarly, psychologically aggressive discipline is another method parents may use to control child behavior by “verbal or symbolic acts to cause psychological pain or fear on the part of the child” (Straus & Field, 2003, p.799), yet it has received less scholarly attention than physically aggressive discipline. Behaviors may include threatening to spank the child, calling the child a derogatory name, and swearing or yelling at the child. Studies estimate that psychologically aggressive discipline use ranges in between 50% to 88% in the population (Regalado et al., 2004; Straus & Field, 2003; Vissing, Straus, Gelles, & Harrop, 1991). Overall, psychological aggression has been related to negative child outcomes, such as physical aggression, delinquency, and interpersonal problems (Vissing et al., 1991), as well as poorer school outcomes and lower self-esteem (Gross, & Keller, 1992; Solomon & Serres, 1999).

### **Teen Childbearing and Aggressive Discipline**

Teen childbearing has long been conceived as an important predictor of aggressive parenting behaviors. From a developmental perspective, teen mothers may be less developmentally prepared to take on the tasks of parenthood in comparison to adult childbearers. Adolescents tend to differ from adults in emotionally and psychologically

important ways (Elkind, 1967; Hurlbut et al., 1997) that may affect their parenting behaviors. For example, adolescents tend to have less developed emotion regulation systems, cognitive processes, and self-identities than adults (Albert & Steinberg, 2011). These differences may hinder teen childbearers when dealing with difficult child behavior, putting them at greater risk for using aggressive parenting techniques. While adult parents may face similar psychological challenges, the salience of these challenges for early childbearers is often elevated (Flanagan et al., 1995; Moore & Brooks-Gunn, 2002; Sadler & Catrone, 1983).

Although childbearing age may predict parenting behaviors, contextual factors at multiple ecological levels may help explain adolescent mothers' parenting behaviors. This idea is consistent with Belsky's ecological theory of child maltreatment (Belsky, 1980; Belsky, 1984). Thus, the effects of teen childbearing on aggressive discipline may be reduced or erased once other ecological factors are controlled. In addition, the factors that are related to teen childbearing may also be related to aggressive discipline. For example, adolescent mothers are less likely to graduate from high school, marry, avoid welfare, and be employed (Moore & Brooks-Gunn, 2002), and these factors are related to parents' greater use of aggressive discipline (Belsky, 1984; Berlin et al., 2009; Xu, Tung, & Dunaway, 2000). Failure to consider them may overstate the relation between teen childbearing and aggressive discipline or indicate a spurious relation. Thus, omitted variable bias can be minimized by including these factors as covariates in analytical models.

To date, many studies have examined the relation between parenting and a mother's childbearing age with a focal child. As a result, current-teen childbearers (bore focal child as a teen) are compared to a group of mothers consisting of adult childbearers who bore the focal child as an adult as well as a group of adult childbearers who gave birth to another child

as a teenager but not the focal child (prior-teen childbearer). Nevertheless, distinguishing these groups of childbearers may be important and has not been done before in relation to aggressive discipline. Whether a mother has ever been a teen childbearer (with the focal child or with a different child) might relate to her use of aggressive discipline with the focal child, suggesting an enduring relation between teen childbearing and aggressive discipline. Yet, it is possible that prior-teen childbearing will not relate to differences in aggressive discipline compared to never-teen childbearers, and that only current-teen childbearing is related to greater aggressive discipline with the focal child. This would suggest a temporary relation between teen childbearing and aggressive discipline. Based on this limitation, it is not clear whether teen childbearing has a temporary or enduring relation with a mother's use of aggressive discipline.

On the one hand, there may be an enduring relation between teen childbearing and aggressive discipline because teen childbearers share characteristics that increase their likelihood of teen childbearing and aggressive discipline. These factors may have an enduring impact on a mother's outcomes, irrespective of her development over time or how much childrearing experience she gains. Hence, teen childbearing, whether it was with a prior child or the focal child (prior or current), would appear to increase the likelihood of a mother's current use of aggressive discipline.

On the other hand, the relation between teen childbearing and aggressive discipline may be temporary. Theory and research on adolescent judgment and decision-making supports the idea that adolescents' cognitions and emotion-regulation are still emerging and that the process extends into early adulthood (Albert & Steinberg, 2011). As an adolescent mother ages, her ability to cope with the demands of parenting may improve because of her

development in judgment, decision-making, and impulse control, possibly leading her to use aggressive discipline less often (Albert & Steinberg, 2011). Thus, only current-teen childbearers, but not prior-teen childbearers would engage in greater amounts of aggressive discipline.

### **Contributions of the Current Study**

Previous work has established a relation between teen childbearing and greater use of aggressive discipline. Nevertheless, this work has not elucidated whether the relation is brief or persistent. Therefore, the aim of the current study is to build on previous studies by investigating whether teen childbearing has a temporary or an enduring relation with a mother's current use of aggressive physical and psychological discipline. To this end, analyses were performed to answer two research questions:

- (1) Is there a relation between current teen childbearing status and current use of physically or psychologically aggressive discipline?
- (2) Does current use of physically or psychologically aggressive discipline vary by teen childbearing status, comparing current-teen childbearers and prior-teen childbearers to never-teen childbearers?

## **Method**

### **Sample & Data**

This study uses data from the Fragile Families and Child Wellbeing (FFCW) study, which consists of a sample of nearly 5,000 children and their families. The FFCW study was designed to oversample children born to unmarried parents, and thus it includes a larger proportion of low-income children than one would expect in a nationally representative sample (see Reichman, Teitler, Garfinkel, & McLanahan, 2001, for a complete description of

the sample and study design). Data were obtained from families at five time points: when the focal child was born and at ages 1, 3, 5, and 9. Parents provided information about parenting behaviors, family and household characteristics, child development and functioning, caregiver physical and mental health, and neighborhood characteristics through telephone interviews and in-home visits.

A mother and her child were included in the current sample if the mother had: (1) non-missing data on both of the outcome measures at child age 3, (2) non-missing data on her age at the focal child's birth and age at first birth, and (3) non-missing data on all control variables. Of the 4,898 families included in the FFCW study at baseline, 64.6% ( $n = 3,163$ ) met the first criteria. Of the 3,163 families who met the first criteria, 95.1% ( $n = 3,009$ ) met the second criteria, and of those, 96.6% ( $n = 2,908$ ) met the third criteria.

## Measures

### **Dependent variables.**

***Psychologically aggressive discipline.*** Using the psychological aggression subscale of the Conflict Tactics Scale-Parent to Child (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998), a measure of psychologically aggressive discipline was created, which includes parental behaviors such as shouting, threatening to spank, swearing, calling the child dumb, and threatening to send the child away or kick him/her out of the house. Interviewers asked mothers about the frequency with which they had engaged in each type of behavior in the past year: 0 = *not in the past year*, 1 = *1 time*, 2 = *2 times*, 3 = *3-5 times*, 4 = *6-10 times*, 5 = *11-20 times*, 6 = *more than 20 times*. Response categories were recoded to their midpoints, and then responses were summed across the items to create a chronicity score, as suggested by Straus et al. (1998). In addition, two binary variables were created based on percentile

cutoffs to represent *harsh psychological discipline*. First, a variable was created to represent the top 10<sup>th</sup> percentile of chronicity scores for the sample – scores greater than 50 were coded as one, and scores less than or equal to 50 were coded as zero. Second, a variable representing the top 25<sup>th</sup> percentile of chronicity scores for the sample was created – scores greater than 40 were coded as one, and scores less than or equal to 40 were coded as zero.

***Physically aggressive discipline.*** Physically aggressive discipline was measured using the Conflict Tactics Scale-Parent to Child physical aggression subscale (Straus, et al., 1998). The FFCW study included items measuring the frequency of spanking with a bare hand, hitting with an object, slapping, pinching, and shaking. Interviewers asked about the frequency with which the mother had engaged in each type of behavior in the past year: 0 = *not in the past year*, 1 = *1 time*, 2 = *2 times*, 3 = *3-5 times*, 4 = *6-10 times*, 5 = *11-20 times*, 6 = *more than 20 times*. Response categories were recoded to their midpoints, and then responses were summed across items to create a chronicity score, as suggested by Straus et al. (1998). In addition, two binary variables were created based on percentile cutoffs to represent harsh amounts of physically aggressive discipline, referred to as *harsh physical discipline*. First, a variable was created to represent the top 10<sup>th</sup> percentile of chronicity scores for the sample – scores greater than or equal to 47 were coded as one, and scores less than 47 were coded as zero. Second, a variable was created to represent the top 25<sup>th</sup> percentile of chronicity scores for the sample – scores greater than or equal to 24 were coded as one, and scores less than 24 were coded as zero.

**Independent variables.** I used and/or created a series of variables to represent current childbearing age, and temporary and enduring conceptualizations of teen childbearing with aggressive discipline.

***Current childbearing age.*** The FFCW measured the mother's age at the time of the focal child's birth, and this continuous variable was used to index a mother's current childbearing age.

***Current-teen childbearer.*** Maternal age at the time of the focal child's birth was used to create a binary variable differentiating mothers who were less than 20 years old at the time of the focal child's birth (= 1) and mothers who were 20 years of age or older at the time of the focal child's birth (= 0).

***Current/prior/never-teen childbearer.*** Using existing variables indicating a mother's age at her first birth and her age at the birth of the focal child, variables were created to represent three categories of childbearers. If a mother's age at first birth and her age at the focal child's birth were equal and less than 20 years, then the mother was considered a current-teen childbearer. If a mother's age at first birth was less than 20, but her age at the focal child's birth was 20 or greater, then the mother was considered a prior-teen childbearer. Finally, if a mother's age at first birth and age at the focal child's birth were both 20 years or greater, then she was considered a never-teen childbearer. A single categorical variable was created to represent the three childbearing groups for a series of bivariate analyses, and two dummy variables were created to represent the three groups of childbearers for multivariate analyses, with the never-teen childbearers used as the reference group.

**Control variables.** Multivariate analyses included several covariates that are related to teen childbearing and/or aggressive discipline. Child characteristics included age, gender (1 = male), and child emotionality, which is a measure of difficult child temperament as reported by the mother at child age 1, derived from the Emotionality, Activity, and Sociability Temperament Survey for Children (Mathieson & Tambs, 1999). Maternal

characteristics, which were measured at child age 3, included race (Black, Hispanic, White, or Other), marital status (married, cohabiting, single), impulsivity (mother's average score for six dysfunctional impulsivity variables from Dickman's [1990] impulsivity scale), criminal activity (ever arrested), depression (CIDI-SF, Section A [Kessler et al., 1998], as scored by FFCW), and perceived number of functional supports (series of items indicating whether mother could rely on someone to provide emergency childcare, monetary loan, emergency shelter, etc.). Other variables measured at child age 3 included log-transformed household income, food stamp receipt, number of children living in the household, and neighborhood safety problems (average of eight items covering safety issues such as gang activity, drug dealing, and disorderly conduct).

### **Statistical Analyses**

Descriptive analyses were performed to assess the mean and dispersion of dependent and independent variables (see Table 1 for presentation of dependent variable descriptives). Tests for significant differences between teen childbearing groups were then conducted using parametric and non-parametric statistical tests appropriate for the type of dependent variables and the number of levels of the independent variables. Chi-square tests were used to determine significant differences in proportions between two childbearing groups. T-tests were used to detect differences between two childbearing groups on continuous outcomes. ANOVAs were used to determine significant differences between three childbearing groups on continuous and binary outcomes. The key focus of these bivariate analyses was to examine any differences between the childbearing groups in their use of psychologically and physically aggressive discipline when other factors were not considered as explanatory variables. Comparing the results from the bivariate analyses to the multivariate analyses



(explained next) would help explain if differences between teen childbearing groups might be explained by other factors occurring in the lives of the mothers.

In order to answer the research questions when accounting for additional factors, the author constructed and tested a series of three regression models, examining both psychologically and physically aggressive discipline. Model 1 tested the relation between current childbearing age and each type of discipline. Model 2 tested a temporary relation by examining the relation between current-teen childbearing and each type of discipline. Model 3 tested an enduring and/or temporary relation by comparing the current-teen childbearer group and the prior-teen childbearer group to the never-teen childbearer group.

To test the robustness of the effects of the key independent variables on the dependent variables, each model was carried out using three representations of the two outcome variables – frequency, top 25<sup>th</sup> percentile, and top 10<sup>th</sup> percentile. The frequency regressions used a continuous measure of each dependent variable, and due to highly skewed data and high over-dispersion, negative binomial regressions were conducted. The analyses that examined the top 25<sup>th</sup> percentile cutoff and the top 10<sup>th</sup> percentile cutoff were carried out using logistic regression. All analyses were conducted using SAS 9.2.

## **Results**

### **Descriptive Statistics**

Table 1 contains sample sizes and descriptive statistics for the entire sample and by different teen childbearing categories. Significant differences in the discipline outcomes arose. Comparing mothers who were current-teen childbearers to mothers who were current-adult childbearers, current-teen childbearers used a greater amount of psychologically aggressive discipline and physically aggressive discipline. Current-teen childbearers also had

a greater proportion of mothers who were in the top 10<sup>th</sup> and top 25<sup>th</sup> percentile for harsh physical discipline than current-adult childbearers.

Examining never-teen, current-teen, and prior-teen childbearers, prior-teen childbearers used a greater amount of psychologically aggressive discipline compared to never-teen childbearers. Likewise, current-teen childbearers used a greater amount of psychologically aggressive discipline compared to never-teen childbearers. The only significant difference on mothers' use of *harsh* psychological discipline (top 10<sup>th</sup> and 25<sup>th</sup> percentile) was between mothers who were never-teen childbearers and mothers who were prior-teen childbearers.

With regard to physically aggressive discipline, current-teen childbearers' use was significantly greater than prior-teen childbearers and never-teen childbearers. There were no significant differences between prior-teen childbearers and never-teen childbearers. There were no significant differences between groups in the proportion of mothers falling in the top 10<sup>th</sup> percentile of harsh physical discipline. Yet, current-teen childbearers had a significantly greater proportion of mothers in the top 25<sup>th</sup> percentile in comparison to prior-teen childbearers and never-teen childbearers.

### **Psychologically Aggressive Discipline**

Table 2 contains the results from Models 1 through 3 for the frequency of psychologically aggressive discipline, and harsh psychological discipline at the top 25<sup>th</sup> and top 10<sup>th</sup> percentile. Model 1 indicated that the mother's current childbearing age was significantly related to the frequency of psychologically aggressive discipline. Furthermore, the mother's current childbearing age was related to both binary indicators of harsh psychological discipline. If mothers' were older at the time of the focal child's birth they

used a lesser amount of psychologically aggressive discipline and were less likely to use a harsh amount (top 25<sup>th</sup> and 10<sup>th</sup> percentile), controlling for child, maternal, household, and neighborhood factors. Nevertheless, Model 2 showed no significant differences in psychologically aggressive discipline between current-teen childbearers and current-adult childbearers.

Model 3 generally indicated no significant differences between mothers who were never-teen childbearers and current-teen childbearers, or prior-teen childbearers in their psychologically aggressive discipline across the three variations of the dependent variable. There was one exception. In the model utilizing the top 25<sup>th</sup> percentile cutoff, mothers who were prior-teen childbearers were more likely to use harsh psychological discipline in comparison to mothers who were never-teen childbearers when accounting for child, maternal, household, and neighborhood characteristics.

### **Physically Aggressive Discipline**

Table 3 displays the results from the three models testing relations between teen childbearing status and physically aggressive discipline. Model 1 tested the relation between current childbearing age and physically aggressive discipline and showed a significant, negative relation; mothers that were older at the time of the focal child's birth used lesser amounts of physically aggressive discipline and were less likely to have used harsh physical discipline. Model 2 resulted in a significant positive relation between current-teen childbearing and the amount of physically aggressive discipline and the likelihood of harsh physical discipline. Model 3 revealed that, in comparison to mothers who were never-teen childbearers, mothers who were current-teen childbearers used a greater amount of physically aggressive discipline and were more likely to use harsh physical discipline (top 25<sup>th</sup>

percentile). There was no significant difference between mothers who were prior-teen childbearers and mothers who were never-teen childbearers.

### **Discussion**

The results from the current study support prior research demonstrating that teen childbearing is a risk for poor parenting outcomes (Durrant, 2008; Gershoff, 2002; Gromoske & Maguire-Jack, 2012; Lee, Grogan-Kaylor, & Berger, In press; Maguire-Jack, Gromoske, & Berger, 2012; Paolucci & Violato, 2004). Results from bivariate analyses indicated that there is a temporary and an enduring relation between teen childbearing and psychologically aggressive discipline. However, once an array of child, maternal, household, and neighborhood covariates were included in the model the apparent enduring association dissipated; only a continuous measure of current childbearing age was associated with psychologically aggressive discipline. Both bivariate and multivariate analyses for physically aggressive discipline suggested a temporary relation between teen childbearing and physically aggressive discipline. Taken together, the results suggest that, although teen childbearing may be a risk for aggressive discipline, the association may not be a lasting one.

A likely explanation for why teen childbearing status did not have any relation with psychologically aggressive discipline in multivariate analyses is that other factors may have accounted for most of the variability in the outcome. The greater occurrence of these risks in the lives of teen mothers, like maternal depression and low income (see Moore & Brooks-Gunn, 2002 for a review), may truly explain a greater use of psychologically aggressive discipline rather than childbearing age itself. The results do not seem to give support to the adolescent development theory, which suggests that teen childbearers may grow out of using aggressive forms of parenting due to changes in brain functioning and emotion regulation.

Yet, another explanation is possible, given that there was an association between current childbearing age and psychologically aggressive discipline in multivariate analyses. The relation between current childbearing age and psychologically aggressive discipline may have been small enough to be masked when childbearing age was dichotomized or trichotomized and contextual factors were taken into account.

The results for physically aggressive discipline support the idea that adolescent development in brain functioning and emotion regulation (e.g., Albert & Steinberg, 2011) may explain differences in the parenting behaviors of teen and adult mothers. It is possible that teen mothers' greater use of physically aggressive discipline may be short-term because developmental issues like impulsivity and problem-solving skills may fade as teens develop. In addition, teen childbearers may learn what works and what doesn't work in disciplining their children, such that prior-teen childbearers do not use the same techniques with their current child as they did with their prior, teen-borne child. The results do not seem to support the idea that contextual factors explain away differences between teen and adult childbearers in their use of physically aggressive discipline.

Although the results may seem to contrast one another, at the most basic level, teen childbearing was related to greater use of psychologically and physically aggressive discipline, whether or not contextual factors were considered. Nevertheless, the relation between teen childbearing and greater aggressive discipline may not be a lasting one. This is akin to the work on adolescent motherhood by Furstenberg. He found that the effects of early childbearing over the long-run were less dramatic; differences between early and later childbearers diminished over time (e.g., Furstenberg, 2003; Furstenberg, Brooks-Gunn, & Chase-Lansdale, 1989; Hoffman, Foster, & Furstenberg, 1993). Other studies have

documented reduced or insignificant differences between children and adolescents borne to teenage and older mothers over the long term (Geronimus, Korenman, & Hillemeier, 1994; Levine, Pollock, & Comfort, 2001; Massat, 1995; Moore, Morrison, & Greene, 1997). A similar diminishing effect may exist between teen childbearing and aggressive discipline, as was evidenced in the current study.

There are several limitations to the current study that should be considered when interpreting the results. First, mothers reported their own disciplinary behaviors, which could have led to underreporting due to fear of being reported to CPS. Future studies may wish to utilize data from outside observers or other collateral informants to overcome this limitation. Second, the disadvantaged composition of the FFCW sample means that results may not be generalizable to the broader population. Third, the analyses are cross-sectional and therefore are unable to follow teen and adult mothers over time to document how their disciplinary behaviors change. Future longitudinal analyses using latent growth curve modeling or multilevel modeling are needed to examine stability and change in differences between teen and adult childbearers' parenting over time. Fourth, the FFCW does not supply data to investigate how prior-teen childbearers disciplined the child they bore as a teen. Birth order effects could have been present in the current study and might have explained differences in the manner in which current-teen and prior-teen childbearers disciplined their children. However, the birth effects literature is mixed; some studies indicate that any effect attributable to birth order is likely to be small (e.g., Hauser & Sewell, 1985; Kessler, 1991), minimizing this threat, whereas others find stronger birth-order differences (e.g., Black, Devereux, & Salvanes, 2005; Price, 2008).

This study indicates that there is a temporary relation between teen childbearing and

greater aggressive discipline. These findings suggest the need to intervene with teen mothers early in the parent-child relationship or with teenagers before they become parents to reduce the likelihood of children experiencing harsh discipline early in their lives. This may be especially important considering research that suggests negative developmental outcomes for children who experience harsh parenting behaviors (e.g., Gershoff, 2002; Maguire-Jack, Gromoske, & Berger, 2012; Gilbert, Spatz Widom, Browne, Fergusson, Webb, & Janson, 2009).

Furthermore, comprehensive programs may be most beneficial as an intervention approach because they would be able to address the contextual factors affecting the parenting behaviors of teen mothers, help mothers cope with their own developmental issues, as well as teach effective parenting strategies. Thus, parenting issues emanating from contextual risks and developmental issues could be addressed simultaneously. Comprehensive programs, such as home-visiting models and universal/multi-level programs like Nurse-Family Partnership, Triple P-Positive Parenting Program, and Better Beginnings, Better Futures, may help mothers deal with stressors in their lives and teach skills to deal with difficult child behavior that might prompt aggressive discipline, especially for teens, who tend to be more impulsive. These types of programs may be more effective than single-goal programs in addressing the complex life situations of teen childbearers.

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Table 1  
*Proportions and Means of Psychologically and Physically Aggressive Discipline for Sample by Teen Childbearing Status Variables*

	Full Sample	Current-teen childbearer		Current/Prior/Never teen-childbearer		
		No	Yes	Never	Current	Prior
Variable	N = 2908	n = 2377	n = 531	n = 1582	n = 531	n = 795
Psych. agg. disc.	24.72	24.34	26.43*	23.25 <sup>ab</sup>	26.43 <sup>a</sup>	26.51 <sup>b</sup>
Harsh psych. top 10th percentile	0.09	0.08	0.11	0.07 <sup>ab</sup>	0.11 <sup>a</sup>	0.11 <sup>b</sup>
Harsh psych. top 25th percentile	0.23	0.22	0.25	0.20 <sup>ab</sup>	0.25 <sup>a</sup>	0.26 <sup>b</sup>
Phys. agg. disc.	15.80	15.05	19.12***	14.93 <sup>b</sup>	19.12 <sup>ab</sup>	15.29 <sup>a</sup>
Harsh phys. top 10th percentile	0.10	0.10	0.12*	0.09	0.12	0.10
Harsh phys. top 25th percentile	0.25	0.24	0.33***	0.23 <sup>b</sup>	0.33 <sup>ab</sup>	0.24 <sup>a</sup>

*Note.* Psych. = psychological; Phys. = physical. Values that share the letter

“a” superscript indicate a significant difference between the two groups;

values that share the letter “b” superscript indicate a significant difference

between the two groups.

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

Table 2  
*Psychologically Aggressive Discipline Regression Models*

Predictor	Model 1			Model 2			Model 3		
	Freq	25th	10th	Freq	25th	10th	Freq	25th	10th
Current childbearing age	-0.06**	-0.07*	-0.10*						
Current-teen childbearer				0.01	0.00	0.01			
Current-teen childbearer							0.02	0.02	0.02
Prior-teen childbearer							0.03	0.07*	0.04
Child emotionality	0.06**	0.10***	0.13***	0.06**	0.10***	0.13***	0.06**	0.10***	0.13***
Child age	0.04	0.04	0.11**	0.04*	0.04	0.11**	0.04*	0.04	0.11**
Child gender	0.05*	0.10***	0.12**	0.05*	0.10***	0.12**	0.05**	0.10***	0.12**
Mother's impulsivity	0.07***	0.08**	0.16***	0.07***	0.09**	0.16***	0.07***	0.09**	0.16***
Mother charged breaking law	0.07***	0.09***	0.11***	0.07***	0.09***	0.11***	0.07***	0.09***	0.11***
Mother depressed	0.07***	0.06*	0.06	0.07***	0.06*	0.06	0.07***	0.06*	0.06
Mother Black	0.06*	0.06	0.01	0.06*	0.07	0.02	0.06*	0.06	0.01
Mother Hispanic	-0.09***	-0.13***	-0.21***	-0.09***	-0.12**	-0.21***	-0.09***	-0.12***	-0.21***
Mother other race	0.00	0.03	0.05	0.01	0.03	0.05	0.01	0.03	0.05
Mother cohabiting	0.00	0.00	0.04	0.02	0.02	0.06	0.01	0.01	0.06
Mother single	0.03	0.05	0.13*	0.04	0.06	0.14**	0.03	0.05	0.14*
Number of supports	0.03	0.04	0.02	0.04	0.05	0.03	0.04	0.05	0.03
HH income	0.10***	0.10**	0.12*	0.10***	0.09**	0.12*	0.10***	0.09**	0.12*
Food stamp receipt	0.04	0.01	0.10*	0.05	0.01	0.11*	0.04	0.01	0.10*
Num. children in HH	-0.02	-0.03	0.00	-0.03	-0.04	-0.01	-0.04	-0.06*	-0.02
Neighborhood safety problems	0.13***	0.17***	0.20***	0.13***	0.17***	0.20***	0.13***	0.17***	0.20***
Dispersion	0.97			0.97			0.97		

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



Table 3  
*Physically Aggressive Discipline Regression Models*

Predictor	Model 1			Model 2			Model 3		
	Freq	25th	10th	Freq	25th	10th	Freq	25th	10th
Current childbearing age	-0.16***	-0.17***	-0.19***						
Current-teen childbearer				0.07**	0.08**	0.04			
Current-teen childbearer							0.07**	0.08**	0.04
Prior-teen childbearer							0.01	0.00	0.01
Child Emotionality	0.08**	0.08***	0.03	0.08**	0.08**	0.03	0.08**	0.08**	0.03
Child age	0.02	0.03	0.06	0.03	0.03	0.06	0.03	0.03	0.06
Child gender	0.11***	0.09***	0.13***	0.10***	0.08***	0.13***	0.10***	0.08***	0.13***
Mother's impulsivity	0.08**	0.07**	0.11**	0.08**	0.07**	0.12**	0.08**	0.07**	0.11**
Mother charged breaking law	0.07**	0.05	0.09**	0.07**	0.04	0.08**	0.07**	0.04	0.08**
Mother depressed	0.08***	0.08***	0.08*	0.09***	0.08***	0.08*	0.09***	0.08***	0.08*
Mother Black	0.13***	0.09**	0.13*	0.15***	0.11**	0.15**	0.15***	0.11**	0.15**
Mother Hispanic	-0.15***	-0.18***	-0.16**	-0.13***	-0.16***	-0.14*	-0.14***	-0.16***	-0.14*
Mother other race	0.00	0.01	-0.02	0.01	0.02	-0.01	0.01	0.02	-0.02
Mother cohabiting	-0.04	-0.06	-0.07	-0.03	-0.04	-0.04	-0.03	-0.04	-0.04
Mother single	0.01	-0.03	-0.01	0.03	0.00	0.02	0.02	0.00	0.02
Number of supports	0.06*	0.05	0.04	0.07**	0.06*	0.05	0.07**	0.06*	0.05
HH income	0.13***	0.09**	0.14**	0.12***	0.07*	0.12*	0.12***	0.07*	0.12*
Food stamp receipt	0.03	-0.01	0.00	0.04	0.00	0.01	0.04	0.00	0.01
Num. of children in HH	-0.07**	-0.06*	-0.01	-0.08**	-0.07**	-0.04	-0.09**	-0.07**	-0.04
Neighborhood safety problems	0.11***	0.12***	0.11**	0.12***	0.12***	0.11**	0.12***	0.12***	0.11**
Dispersion	1.57			1.59			1.59		

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

### **CHAPTER 3**

## **Aggressive Discipline Trajectories of Teen and Adult Childbearers and the Influence of Domestic Violence, Mental Health, and Social Support**

### **Abstract**

Teen childbearing is associated with aggressive discipline, but no studies have investigated how teen childbearers' discipline changes over time, whether their trajectories differ from adult childbearers, or the malleable time-varying factors associated with changes in discipline over time. Data from mothers (N = 729) who were part of the National Survey of Child and Adolescent Wellbeing were used to construct latent growth curve models to estimate trajectories of psychologically and physically aggressive discipline (CTS-PC) and to investigate the malleable, time-varying factors associated with aggressive discipline. Results indicated that teen childbearers were more likely than adult childbearers to use each type of discipline at child ages 0-1 and 1.5 years. Teen mothers did not significantly differ from adult mothers in their rate of change for either type of discipline. Mothers who experienced domestic violence, had poorer mental health, and were less satisfied with their social support were more likely to engage in aggressive discipline, over and above the average developmental discipline trajectory. However, the effects of these factors were time-specific, and, aside from domestic violence, did not vary by childbearing status. The findings suggest that teen childbearers' use of aggressive discipline is distinct from that of adult childbearers at earlier child ages when aggressive discipline is less normative, but that teen and adult childbearers share similar discipline patterns at later child ages. The results also highlight malleable, time-varying factors that are related to discipline use over time - evidence that can be used to inform early intervention programs.

Research has shown that aggressive psychological and physical discipline from infancy to the preschool years is relatively common in the United States (Straus & Field, 2003; Straus & Stewart, 1999). Aggressive disciplinary behaviors have been linked to poorer child developmental outcomes (Durrant, 2008; Gershoff, 2002; Maguire-Jack, Gromoske, & Berger, 2012; Paolucci & Violato, 2004; Solomon & Serres, 1999) as well as child protective services involvement/child maltreatment (Lee, Grogan-Kaylor, & Berger, In press). Moreover, teen childbearers, in comparison to adult childbearers, are at greater risk for engaging in aggressive disciplinary behaviors (Connelly & Straus, 1992; Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010).

Nevertheless, mothers may vary their use of aggressive discipline over time due to their own development, their interactions with their children, and the influence of other parent, child, and contextual factors. Hence, aggressive discipline may be conceptualized from a developmental systems perspective (Lerner, Rothbaum, Boulos, & Bastellino, 2002), because it may vary over time and be influenced by factors that vary over time. However, it is not clear if teen childbearers develop in their use of aggressive discipline in a similar way to that of adult childbearers. Moreover, few studies have investigated the factors that are related to developmental patterns of aggressive discipline, and if their effects vary by teen childbearing status.

In the current study, I used longitudinal data from a sample of teen and adult childbearers who were investigated by Child Protective Services (CPS) to examine their developmental patterns in aggressive discipline use from the time of their child's birth to age 5, and to examine the time-varying effects of domestic violence, mental health, and social support satisfaction on the development of disciplinary behaviors.

## **Developmental Patterns of Aggressive Discipline in Early Childhood**

Parenting roles and behaviors develop over time (Lerner, Rothbaum, Boulos, & Bastellino, 2002). Caregivers, when viewed through the lens of developmental systems theory, are expected to adapt in response to child developmental changes and reciprocal parent-child interactions. Caregivers also learn what parenting behaviors are more effective in achieving goals for their child's development through trial and error.

Applying these ideas to aggressive discipline, mothers would be expected to avoid aggressive disciplinary behaviors with their infant children, because infants have limited capacity to control their behavior and understand cause and effect. As infants develop into toddlers and they begin to explore their worlds and test the boundaries of acceptable behavior, mothers typically increase their use of aggressive disciplinary behaviors. For example, mothers may increase their use of yelling or spanking in order to control their child's behavior and help the child learn what behaviors are appropriate. As children reach early childhood, mothers may use fewer of these types of disciplinary behaviors because children are better able to understand reasoning and push the boundaries of acceptable behavior less often. In addition, mothers may change in the frequency of certain types of disciplinary techniques over time because they may learn that some types of discipline are more or less effective with their child. Longitudinal studies on changes in physical discipline suggest that parents increase their use of physical discipline until late toddlerhood and then subsequently decrease their use (McNally, Eisenberg, & Harris, 1991; Socolar, Savage, & Evans, 2007; Vittrup, Holden, & Buck, 2006).

What prior studies have typically done is examine group-prevalence or average group frequencies over time. What few prospective studies have been able to consider is the

continuous, and individual-specific, underlying process related to how parents' disciplinary behaviors may develop over time. In the only known study to have examined developmental trajectories of discipline, Kim, Pears, Fisher, Connelly, and Landsverk (2010) used latent growth curve modeling to assess developmental growth and decline in harsh maternal discipline at child ages 1, 2, and 3 in a high-risk sample. Supporting findings from prior studies, the authors found that harsh discipline increased from age 1 to age 2, and subsequently remained stable at age 3.

Whether there are differences in the aggressive discipline trajectories of teen and adult childbearers is not known. Only Huang and Lee (2008) have investigated the discipline behavior of teen and adult mothers at two separate time points. At both time points, teen mothers (age 19 and younger) used a significantly greater amount of spanking than adult mothers (aged 25 and older). Nevertheless, spanking was greater at time point 2 than at time point 1 for the entire sample, suggesting that, on average, both teen and adult childbearers increased in their use of spanking. While this study indicates that teen childbearers may use spanking as a discipline technique more than adult childbearers, it only sheds some light on how individuals' discipline changes over time (trajectories) and whether there are sustained differences in the trajectories of teen and adult childbearers.

### **Teen and Adult Childbearers' Discipline Trajectories**

Empirical research suggests that teen childbearers use a greater frequency of aggressive discipline in comparison to adult childbearers (Connelly & Straus, 1992; Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010; Woodward & Fergusson, 2002), but it is unclear if these differences persist over time. It is possible, for example, that differences in aggressive discipline between teen and adult mothers may be stable due to selection effects

(e.g., Geronimus & Korenman, 1992, 1993; Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001).

That is, teen childbearers might share certain endogenous or exogenous characteristics that increase their risk of early childbearing and engaging in maladaptive parenting strategies.

Despite a mother's maturation and increased childrearing experience, these characteristics may exert an enduring influence on discipline. It is also possible that the same risks present before childbirth may lead a mother to select certain environments (e.g., abusive relationships) later on that perpetuate her increased risk for harsh parenting. Finally, the act of early childbearing itself may stunt or foreclose developmental growth. For instance, early childbearing tends to derail educational and occupational achievements for many women and these factors may be related to greater use of aggressive discipline.

On the other hand, the differences between teen and adult childbearers' use of aggressive discipline may diminish over time, and the characteristics that contribute to those differences may fade as well. Exogenous factors that increase the likelihood of both aggressive discipline and teen childbearing may change status and therefore, may not increase the likelihood of aggressive discipline. For example, teen mothers are more likely than adult mothers to have low income (e.g., Moore & Brooks-Gunn, 2002), and low income may increase the likelihood of teen childbearing and aggressive discipline. Nevertheless, teen mothers' income may increase over time and may be associated with lower levels of aggressive discipline, bringing their discipline to a level more similar to that of adult childbearers. In addition, endogenous factors that are associated with aggressive discipline and teen childbearing may change over time. For instance, adolescents' emotion regulation and cognitive processing are still developing as they enter early adulthood (Albert & Steinberg, 2011). As an adolescent mother ages, her ability to cope with the daily stressors of

parenting (e.g., child non-compliance) may improve due to advances in judgment, decision-making, and impulse control (Albert & Steinberg, 2011). As a result, teen and adult childbearers' disciplinary behaviors may increasingly align with that of adult childbearers over time.

### **Factors Impinging on Aggressive Discipline Trajectories**

Although childbearing age may be an important factor related to discipline trajectories, there are non-malleable and malleable factors that should also be controlled for or considered that may affect the likelihood and/or frequency a mother uses aggressive discipline. For example, certain non-malleable factors such as race and child gender may be related to discipline. Research has shown that African American parents tend to use a greater amount of aggressive discipline compared to European American parents (Dietz, 2000; Giles-Sims, Straus, & Sugarman, 1995; Huang & Lee, 2008; Pinderhughes, Dodge, Zelli, Bates, & Pettit, 2000; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004; Straus & Stewart, 1999; Wissow, 2001), and that Hispanic American parents use aggressive discipline less frequently than European American parents (Hashima & Amato, 1994; Regalado et al., 2004; Wissow, 2001). Studies also suggest that parents are more likely to use aggressive discipline with male children than with female children (Day, Peterson, & McCracken, 1999; Dietz, 2000; Dukewich, Borkowski, & Whitman, 1996; Giles-Sims et al., 1995; Pinderhughes et al., 2000; Grogan-Kaylor & Otis, 2007; Smith & Brooks-Gunn, 1997; Straus & Stewart, 1999).

Alterable risk and protective factors that contribute to variation in discipline are especially salient given that they can potentially be modified through intervention. For example, mothers experiencing stressors like domestic violence may be less likely to discipline their children in a developmentally appropriate way. Mothers who experience



domestic violence may have greater negative affect and arousal increasing their likelihood to engage in aggressive discipline in response to challenging child behavior. Similarly, mothers who experience domestic violence may try to avoid allowing children to anger the violent partner by becoming more controlling over their child's behavior using more discipline that is aggressive. As a result, they may be more likely to engage in aggressive discipline over and above the average developmental discipline process. Kim et al. (2010) found that intimate partner aggression was longitudinally related to greater aggressive discipline, above and beyond the average developmental discipline process (i.e., discipline trajectory).

Likewise, research has indicated that poor maternal mental health (Ceballo & McLoyd, 2002; Day et al., 1999; Lee, 2009; Regalado et al., 2004; Simons, Beaman, Conger, & Chao, 1993; Wissow, 2001) is related to greater use of aggressive discipline. Mothers may also engage less in aggressive disciplinary behaviors over time if they have sources of support. Research has found that greater amounts of social support have been associated with lower amounts of aggressive discipline (Hashima & Amato, 1994).

Furthermore, the salience of the malleable, time-varying factors may differ by teen childbearing status. It is possible that teen and adult childbearers' parenting is affected differently by factors such as domestic violence, mental health, and social support. Teens may be more vulnerable to the effects of risk factors because they may have fewer internal coping resources due to their developmental stage in emotion regulation, decision-making, and judgment. They may also be more vulnerable than adults to risk because they may have fewer external resources on which to draw support. For example, teen mothers tend to come from disadvantaged families who have fewer of their own resources that they can share with their adolescent mothers. Protective factors may be less able to buffer the negative effects of

a greater number of risks for teen childbearers in comparison to adult childbearers.

Nevertheless, the greater effects of risk and protective factors on teen rather than adult childbearers may change as changes take place in risk and protective factors.

### **Contributions of the Current Study**

The current study addresses three limitations of prior research on discipline trajectories generally, and teen and adult childbearers' discipline trajectories specifically. First, there is a general lack of longitudinal research in the area on aggressive discipline. Second, although teen childbearing is associated with increased use of aggressive discipline in comparison to adult childbearers, it is unclear if the differences remain stable over time. Third, although many non-malleable and malleable factors are related to aggressive discipline, few studies have investigated whether time-varying, malleable risk and protective factors increase or decrease mothers' average developmental aggressive discipline process, and whether effects vary by teen childbearing status. The current study answers the following questions:

- (1) Do the aggressive discipline trajectories of teen and adult childbearers differ when controlling for non-malleable factors?
- (2a) Controlling for non-malleable factors, do time-varying, malleable factors have a time-specific or lasting influence on mothers' aggressive discipline, over and above the average developmental discipline process?
- (2b) Do the effects of time-varying, malleable factors differ between teen and adult childbearers?

## **Method**

### **Sample & Data**

The data for this study were drawn from the National Survey of Child and Adolescent Well-being Study (NSCAW), a longitudinal study of children who were the subject of an abuse or neglect investigation by Child Protective Services (CPS). The NSCAW used a two-stage stratified sampling strategy (see NSCAW Research Group, 2002), resulting in a baseline sample of 5,501 children that are nationally representative of children investigated for child maltreatment. Following an initial assessment 2-6 months after the CPS investigation, subjects were assessed three more times over a 5-year period.

A mother and her child were included in the analytical sample for this study if: (1) the child was age one or younger at baseline, (2) the respondent to the caregiver interview was the biological mother, and (3) the child was living with the respondent. Thus, the selection criteria ensure that analyses only include biological mothers with a co-residing child that could be followed from infancy through age 5. Of the 5,501 children in the NSCAW, 31% ( $n = 1,700$ ) met the first criterion. Of those children, 43% were living in the home with their biological mother, leading to an effective sample of 729 mother-child dyads. Data were collected when these children were approximately 0-1 (Time 1), 1.5 (Time 2), 3 (Time 3), and 5 (Time 4) years old.

## **Measures**

**Dependent variables.** The dependent variables of interest relate to two subscales derived from the Conflict Tactics Scale-Parent to Child (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). First, the physically aggressive discipline subscale includes questions relating to spanking with a bare hand, spanking with an object, pinching, shaking, and slapping the child on their arm/leg/hand. Second, the psychologically aggressive discipline subscale includes questions relating to shouting/yelling at the child,

swearing/cursing, threatening to hit, threatening to send the child away or kick them out of the house, and calling the child dumb/lazy/some other name.

The individual items that comprise each subscale asked the mother to report the number of times in the past year she had used the discipline technique with her child. Responses ranged from 1 = *1 time*, 2 = *2 times*, 3 = *3-5 times*, 4 = *6-10 times*, 5 = *11-20 times*, 6 = *more than 20 times*, 7 = *not in the past 12 months, but it happened before*, and 8 = *this has never happened*. Per recommendations by Straus, Hamby, Finkelhor, Moore, and Runyan (1998) responses of 7 and 8 were recoded to zeros. To create the subscale scores, responses of 3, 4, 5, and 6 were recoded to their midpoints such that a response of 3 was equal to 4, a response of 4 was equal to 8, a response of 5 was equal to 15, and a response of 6 was equal to 25 (Straus et al., 1998). Subsequently, items for each subscale were summed to create a frequency/chronicity score.

The subscale scores at each time point were highly skewed and had a high degree of mothers reporting that they had not engaged in any of the disciplinary behaviors (response = 0) at each time point. Therefore, the dependent variables were treated as semicontinuous responses with a preponderance of zero responses. A semicontinuous response can be viewed as the result of two processes, one determining whether the response is 0 and the other determining the actual level of the response if it is non-zero (Olsen & Schafer, 2001). Duan, Manning, Morris, and Newhouse (1982) demonstrated that treating a variable as semicontinuous, rather than using the raw variable or Box-Cox transforming it, leads to better performance of the statistical models and increased reliability of the results. Olsen and Schafer (2001) applied the idea of semicontinuous variables and models to longitudinal data, and showed their benefit. Hence, in the current study, subscale scores were recoded into two

new variables – a binary variable to indicate whether the mother engaged in the type of discipline (= 1) or not (= 0), and a continuous variable to indicate the frequency with which mothers who had engaged in the disciplinary behavior had done so. Because the continuous variables were still skewed, a square root transformation was performed to give them a more normal distribution. If mothers had a score equal to zero on the binary variable, they were coded as having a missing value on the continuous variable.

**Teen childbearing status.** Mothers in the sample were coded as being a current teen childbearer if they were younger than 20 years old at the time of the focal child's birth (= 1) or being an adult childbearer if they were 20 years or older at the time of the focal child's birth (= 0).

**Time-varying, malleable factors.** Mothers' mental health, satisfaction with social support, and experience of domestic violence were measured at each wave of data collection (Times 1-4). Mothers' mental health was measured by the Mental Component Summary Score of the Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996;  $\alpha = .79$  for the NSCAW). Scores higher than 50 indicate mental health that is better than average, and scores less than 50 indicate mental health that is poorer than average. Mother's satisfaction with social support was measured by the Duke-UNC Functional Social Support Questionnaire (FSSQ; Broadhead, Gehlbach, deGruy, & Kaplan, 1998). The FSSQ contains seven items and responses ranged from 1 = *very dissatisfied* to 4 = *very satisfied*. Items were summed and then averaged to create a mean social support satisfaction score. Mothers' experience of domestic violence was measured by the Conflict Tactics Scale 1 (CTS1; Straus, 1979). Nine items assessed the mother's frequency of violence in the past year. The incidence of violence in the past year was computed by determining if any violence was

reported on the nine items; if any violence was reported the mother was coded as having experienced domestic violence (= 1), else she was coded as not having experienced domestic violence (= 0).

**Covariates.** All analyses controlled for child gender (1 = male) and maternal race (reference group = White, 1 = Black, 2 = Hispanic, 3 = Other race), which were both measured at baseline.

### **Statistical Analyses**

Descriptive statistics, including proportions and means, were computed for all analysis variables for the entire sample and by whether mothers had used psychologically aggressive discipline and physically aggressive discipline at each time point. Results are presented in Table 4 (for psychologically aggressive discipline) and Table 5 (for physically aggressive discipline).

Next, a series of latent growth curve models were constructed in Mplus 6.11 (Muthén & Muthén, 2011) to assess physically and psychologically aggressive discipline. As mentioned previously, each outcome was treated as semicontinuous, entailing two variables – a binary and a continuous variable. To construct the most basic latent growth curve models, the observed binary outcome variables were regressed on a latent binary intercept and slope term. The latent binary intercept term would be interpreted as the *likelihood* of the outcome at the point at which time was centered. The latent binary slope term would be interpreted as the average rate of change in the likelihood of the outcome. Likewise, the observed continuous outcome variables were regressed on a latent continuous intercept and slope term. The latent continuous intercept term would be interpreted as the average frequency with which the outcome was used (for mothers who had engaged in the disciplinary behavior) at

the point at which time was centered. The latent continuous slope term would be interpreted as the average rate of change in the frequency of the outcome.

Both discipline outcomes were fit to this basic unconditional model with each slope term modeling linear change over time. Latent means and variances for all models can be seen in Table 6. A quadratic slope term was also tested for each outcome-model, but it did not improve model fit and was dropped from the models. Subsequently, the teen childbearing variable along with non-malleable baseline control variables were added as predictors of the latent variables to determine whether different components of the trajectories significantly differed between teen and adult childbearers (Model 1). Four variations of Model 1 were estimated with time centered at Time 1 (Model 1-1), Time 2 (Model 1-2), Time 3 (Model 1-3), and Time 4 (Model 1-4). The means for the latent binary intercept and latent continuous intercept from these model variations would be interpreted as the average likelihood (for all mothers) and frequency (for the mothers who had used the type of discipline) of each outcome at the different time points. Examining the regression coefficients between teen childbearing and the latent variables over the four model variations would indicate when significant differences arose between teen and adult childbearers.

Model 2 added malleable, time-varying covariates as predictors of the observed discipline variables to Model 1-1, but eliminated the teen childbearing variable as a predictor of the latent variables and instead, specified it as a predictor of the observed discipline variables. The time-varying covariates were conceptualized as exerting effects on aggressive discipline beyond the developmental process, meaning that the time-varying factors are exogenous and contribute to aggressive discipline above and beyond the effects of developmental processes that are endogenous to the mothers. The author chose to place the

teen childbearing variable in a different part of the model in comparison to Model 1 because it would allow an interaction effect between time-varying factors and teen childbearing. The interaction effect would discern whether there was a different effect of the time-varying factors on the discipline outcomes for teen and adult childbearers. Typically, a multiple group analysis is performed to investigate this type of effect, but limitations in the software available precluded me from using this approach.

Three different specifications of Model 2 were estimated: (1) Model 2-DV, which estimated the effect of domestic violence on the observed discipline variables; (2) Model 2-MH, which estimated the effect of mothers' mental health on the observed discipline variables; and (3) Model 2-SS, which estimated the effect of social support on the observed discipline variables. As mentioned previously, each of these models included teen childbearings as a predictor of the observed discipline variables. Subsequent to the estimation of these models, interaction terms between each measurement of the time-varying factor and teen childbearing were added to the models. For example, main effects for domestic violence and teen childbearing were included as predictors of the observed discipline variables as well as interaction terms between Time 1 domestic violence and teen childbearing, Time 2 domestic violence and teen childbearing, Time 3 domestic violence and teen childbearing, and Time 4 domestic violence and teen childbearing. The regression coefficients connecting the malleable, time-varying factors to the discipline variables would indicate whether and when the malleable, time-varying factors were related to the likelihood and frequency of the observed discipline measures. The regression coefficients connecting the interaction terms to the discipline variables would indicate whether and when the effect of the time-varying factors varied between teen and adult childbearers. All three time-varying factors were not



entered into the same model because of the complexity of estimating such models and the low likelihood of the models converging.

Missing data in Model 1 was handled via Full Information Maximum Likelihood (FIML) estimation. Thus, the models used all available data to estimate model parameters. Under the assumption that, either, the missing data is missing completely at random or missing at random, FIML estimates are unbiased and more efficient than other methods (Enders & Bandalos, 2001). The missing at random assumption seemed to be met according to the Mplus missing data patterns and coverage output. However, Model 2 included variables that were exogenous predictors and not part of estimating the latent variables. Therefore, FIML could not be applied, and only mothers with complete data on each exogenous predictor were included in each variant of Model 2. Out of the total sample size of 729, Model 3-DV included 469 mothers, Model 3-MH included 466 mothers, and Model 3-SS included 471 mothers. Therefore, results from these models should be interpreted with more caution.

## **Results**

### **Descriptive Statistics**

Descriptive statistics for the sample are presented in Table 4 and Table 5. At Time 1, 38% of mothers had engaged in psychologically aggressive discipline, 75% at Time 2, 80% at Time 3, and 81% at Time 4. Of the mothers who reported using psychologically aggressive discipline at each time point, the average square-root transformed frequency was 2.68 at Time 1, 3.63 at Time 2, 3.80 at Time 3, and 3.69 at Time 4. With regard to physically aggressive discipline, 30% of mothers engaged in it at Time 1, 66% at Time 2, 73% at Time 3, and 66% at Time 4. Of the mothers who reported using physically aggressive discipline at

each time point, the average square-root transformed frequency was 2.43 at Time 1, 3.12 at Time 2, 3.17 at Time 3, and 2.84 at Time 4.

### **Psychologically Aggressive Discipline**

Results from Models 1-1 through 1-4 (shown in Figure 1) indicated that teen childbearing was significantly related to the latent binary intercept at Time 1 and Time 2, but teen childbearing was not related to the latent binary slope, continuous intercept, or continuous slope terms at any time point. Teen childbearing was positively related to whether psychologically aggressive discipline was used at Times 1 and 2, but there was no significant differences between teen and adult childbearers in their rate of change for psychologically aggressive discipline – *both* groups increased in the likelihood and frequency of psychologically aggressive discipline (see Table 6).

The three models that included malleable, time-varying factors (Figure 2) revealed that domestic violence and mental health, but not social support, were related to psychologically aggressive discipline. Model 2-DV indicated that the experience of domestic violence at Time 1 and Time 3 was negatively related to the frequency of psychologically aggressive discipline, and that the relation at Time 1 varied by teen childbearing status (T1 freq. interaction term  $b = 0.893, p = .05$ ). However, the experience of domestic violence was positively related to the likelihood and frequency of psychologically aggressive discipline at Time 2, and the frequency effect varied by teen childbearing status (T2 freq. interaction term  $b = -0.951, p = .008$ ). One other interaction effect was found – the likelihood of psychologically aggressive discipline at Time 1 varied by teen childbearing status (T1 likelihood interaction term  $b = 1.712, p = .02$ ).

Model 2-MH revealed a number of significant relations between mental health and

psychologically aggressive discipline. Poorer mental health was related to a greater likelihood of using psychologically aggressive discipline at each time point. In addition, among mothers engaging in psychologically aggressive discipline, poorer mental health was related to greater amounts of psychologically aggressive discipline at Time 1. None of the effects for mental health varied by teen childbearing status, as evidenced by non-significant interaction effects (results not shown in figures). Model 2-SS revealed no significant relations between social support satisfaction and either the likelihood of using psychologically aggressive discipline or the frequency of its use among mothers who reported using it. Again, none of the relations between social support and psychologically aggressive discipline varied by teen childbearing status (results not shown).

### **Physically Aggressive Discipline**

Results from Models 1-1 through 1-4 (Figure 3) indicated that teen childbearing was significantly related to the latent binary intercept at Time 1 and Time 2, but not related to the latent binary slope, continuous intercept, or continuous slope terms at any time point. In summary, teen childbearing was positively related to the likelihood of using physically aggressive discipline at Time 1 and Time 2; there was no significant difference between teen and adult childbearers in the rate of change for physically aggressive discipline – *both* groups had a positive change in the likelihood of engaging in physically aggressive discipline (see Table 6).

The three variants of Model 2 (Figure 4) revealed that domestic violence, mental health, and social support all had significant relations with physically aggressive discipline over time. Specifically, a mother's experience of domestic violence (Model 2-DV) was related to an increased likelihood (among all mothers) and an increased frequency (among

mothers who used it) of physically aggressive discipline at Time 2 and Time 3. Two significant interaction effects were found – the relation of domestic violence at Time 1 and Time 2 with the frequency of physically aggressive discipline varied by teen childbearing status (T1 freq. interaction  $b = 1.19, p = .007$ ; T2 freq. interaction  $b = -1.18, p = .001$ ).

Poorer mental health (Model 2-MH) was related to an increased likelihood of physically aggressive discipline at Time 1, 2, 3, and 4, and an increased amount of it (among mothers who reported using it) at Time 1. The relations between mental health and physically aggressive discipline did not vary by teen childbearing status, as evidenced by non-significant interaction terms (results not shown). Finally, a higher level of social support satisfaction (Model 2-SS) was related to a lower likelihood of physically aggressive discipline at Time 1 and Time 4; a higher level of social support satisfaction was also related to less frequent physically aggressive discipline among mothers who reported using it at Time 1 and Time 4. Again, the relations between social support and physically aggressive discipline did not vary by teen childbearing status (results not shown).

### **Discussion**

The purpose of this investigation was to determine if the aggressive discipline trajectories of teen and adult childbearers differed, if time-varying risk and protective factors were related to aggressive discipline over time for the entire sample of mothers, and if relations between the time-varying factors and aggressive discipline varied by teen childbearing status. Surprisingly, the average rate of change in disciplinary behaviors over child ages 0 to 5 between adult and teen childbearers was not significantly different for either psychologically or physically aggressive discipline. The differences between the groups appeared at younger child ages, specifically age 0-1 year and age 1.5 years, in which teen

mothers were more likely to have used psychologically and physically aggressive discipline in comparison to adult mothers. At later child ages there were no differences between the groups. Furthermore, among mothers who used the disciplinary behaviors, there were no significant differences between teens and adults in the frequency with which they used them.

It is possible that developmental variation between teen and adult mothers may explain why their differences in discipline are present only during the early stages of the child's life. Teen childbearers are still developing in their emotion regulation and cognitive processing (Albert & Steinberg, 2011) at these early child ages. It is easy to see how the effects of immature emotion regulation and cognitive processing could affect a mother's ability to discipline her child in an appropriate way. As their children reach age 3 and age 5, the teen mothers have reached early adulthood – a time when the development of emotion regulation and cognitive processing has reached a more mature state (Albert & Steinberg, 2011). This is in contrast to adult childbearers, who have already entered a more mature state of emotion regulation and cognitive processing by the time they bore the focal child. In other words, as maternal developmental differences wane, so do differences in aggressive discipline.

On the other hand, teen childbearers may not necessarily be exhibiting developmental growth. Rather, the aggressive behaviors that they have engaged in since their children were infants become more normative in the general population, when children are 2-5 years old. In this light, change in the adult childbearers' behavior over time may be as much, if not more, responsible for the estimated differences.

Nevertheless, the results highlight that teens are more likely to engage in aggressive disciplinary behaviors when these behaviors are less developmentally appropriate for

children. Although teens' disciplinary behaviors become more normative over time, damage to their children may occur because of the continuation of these behaviors from early periods to later periods. Prior research has suggested that the continuation of harsh disciplinary behaviors from infancy through later periods is associated with poorer developmental outcomes (Maguire-Jack, Gromoske, & Berger, 2012).

The three malleable, time-varying factors – domestic violence, mental health, and social support – were related to a mother's use of aggressive discipline beyond the trajectory process, meaning that these factors contributed to greater aggressive discipline than the average developmental disciplinary process exhibited by the average mother. The experience of any domestic violence at Time 2 and Time 3 was related to a greater likelihood and frequency of physically aggressive discipline at the same time periods. This may suggest that when children are pushing the boundaries of acceptable behavior and putting stress on parents due to these developmental changes, the added stressor of domestic violence may exceed a mother's coping mechanisms and increase her use of physically aggressive discipline. It is also possible that exposure to violent behavior may increase the likelihood of perpetrating violent behavior. Partner-to-partner aggression may promote parent-to-child aggression by increasing the mother's negative affect or arousal (Margolin & Gordis, 2003) or by prompting the mother to aggressively discipline her child for misbehaving in order to avoid angering the violent partner (McKay, 1994). Another possible explanation, one that has been espoused by Patterson (1982), is that stressful circumstances, such as parenting stress or child behavior problems, increase the likelihood of both partner-to-partner and parent-to-child aggression. However, domestic violence and psychologically aggressive discipline had a somewhat inconsistent relation at different time points. The conflicting results may be

explained by the reduced and less representative sample size for the models, or by differences in the reasons mothers engage in psychologically versus physically aggressive discipline.

In contrast, poorer mental health was related to an increased likelihood of mothers using physically and psychologically aggressive discipline at all time points. In addition, poorer mental health was related to a greater frequency of physically and psychologically aggressive discipline at baseline among mothers who engaged in the disciplinary behaviors. This is a time when the use and increased frequency of physical and psychological discipline is less normative. These findings comport with prior research that has shown linkages between mental health problems and harsh discipline as well as maltreatment (Ceballo & McLoyd, 2002; Day et al., 1999; Lee, 2009; Regalado et al., 2004; Simons, Beaman, Conger, & Chao, 1993; Wissow, 2001).

The models examining the connection between social support and physically and psychologically aggressive discipline yielded discrepant results. Social support was not associated with psychologically aggressive discipline over and above the average developmental disciplinary process. Yet, mothers who were less satisfied with their social support were more likely to use physically aggressive discipline. Plus, mothers who used physical discipline used it in greater amounts at baseline and Time 4, (i.e., infancy; age 5) if they were less satisfied with their social support. Thus, it is possible that social support may reduce the likelihood of maternal aggressive discipline at time points when, based on the child's age, aggressive discipline is less normative.

Overall, the effects of domestic violence, mental health, and social support did not differ between teen and adult childbearers. This would suggest that these factors operate in

similar ways no matter the age at which a mother bears her child. For example, adolescent *and* adult mothers who have better mental health or greater social support are less likely to engage in aggressive discipline and in lesser amounts than mothers who have poorer mental health or less social support. The one exception was that domestic violence that occurred when children were 0-1 and 1.5 years old appeared to have relations with the frequency of psychologically and physically aggressive discipline that differed for teen and adult childbearers. This may indicate that teen and adult childbearers are affected by domestic violence in different ways at different times. There are multiple reasons why they may be affected differently. It's possible that these differences exist because of developmental differences between teens and adults. Teens may be more vulnerable to domestic violence because they have less developed emotion regulation, cognitive processing, and decision-making (e.g., Albert & Steinberg, 2011). Teens may be more likely to beget violence with violence because they have greater negative affect due to the domestic violence *and* their deficits in emotion regulation, which, in turn, promotes parent to child aggression. A similar relation between negative affect due to domestic violence and physical aggression toward children has been posited by others (e.g., Margolin & Gordis, 2003), and this association may be further strengthened by teen mothers' developmental deficits.

### **Limitations**

There are four limitations that should be noted when considering the results of this investigation. First, the NSCAW sample consists of families that have been investigated for child maltreatment. Thus, the results may not generalize to other populations, such as ones that have not had CPS contact or are at lower risk for engaging in aggressive discipline. Moreover, mothers who had already been investigated for child maltreatment may have



underreported their use of aggressive discipline to minimize the likelihood that they would be reported to CPS. Second, factors that NSCAW did not measure over time, or did not consistently measure over time, like household income and child temperament, precluded them from being included in the analyses, despite being important factors in predicting discipline use. Third, the complexity of the analytic technique limited the number and type of variables that could be included in each model. Fourth, the sample sizes for the models including time-varying factors were smaller and should be viewed with some caution due to reduced power and representativeness.

### **Implications and Future Directions**

Despite its limitations, this study generates evidence that can be used to inform parenting intervention strategies. Results highlight the need to intervene with teen mothers early in the parent-child relationship and to continue this intervention until early childhood, because the infant and early toddler period (ages 0-2) is a time period when teen mothers are at great risk of engaging in maladaptive parenting behaviors like aggressive discipline. Intervening prior to the birth of the child and continuing to support the mother through toddlerhood may be the most effective approach to preventing poor parenting behaviors and improving child outcomes. Intervening early or prior to delivery is particularly important so that parents have developed positive parenting skills and have supports prior to high-stress periods, such as when toddlers tend to assert their independence. Moreover, research has shown that children of teen mothers tend to be developmentally behind the children born to adult mothers (Borkowski, Farris, Whitman, Carothers, Weed, & Keogh, 2007), suggesting the need to improve parenting behaviors early in, or prior to, the parent-child relationship for teen mothers. Home visiting programs (e.g., Nurse-Family Partnership, Early Start), and

multi-component programs (e.g., Triple-P) have shown to be particularly effective prevention programs in increasing positive parenting behaviors, decreasing risk factors, and decreasing child maltreatment (MacMillan, Wathen, Barlow, Fergusson, Leventhal, & Taussig, 2009; Mikton & Butchart, 2009; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009).

Furthermore, the results provide insight into malleable influences on maternal aggressive discipline, which could inform more developmentally sensitive and multidimensional interventions. Specifically, it may be beneficial for practitioners and program designers to focus on offering supports to buffer the effects of domestic violence on parenting because results demonstrated that a mother's exposure to domestic violence increases the likelihood and frequency with which she engages in psychologically and physically aggressive discipline. This may be a particularly important factor to consider for teen childbearers, who differed in the effect domestic violence had on their parenting behavior compared to adults. Improving mental health and social support might also decrease aggressive disciplinary behavior, because results indicated sensitive periods (when aggressive discipline is less normative) when better mental health and higher social support decreased the likelihood of aggressive discipline.

Although this study has added to knowledge about disciplinary behaviors of teen and adult childbearers, it is unclear how representative the results are and what other factors may be related to aggressive discipline. Future studies may wish to use other person's reports of maternal disciplinary behaviors. The reports may be less prone to bias than mothers' reports. In addition, it would be important to replicate the analyses with a less risky sample of mothers. Results from such analyses may reveal different relations among the study variables and increase the generalizability of the findings. Finally, future studies could add to the

knowledge base about factors related to the trajectory process by including additional variables as predictors of latent intercept and slope terms.

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Table 4

*Descriptive Statistics for Study Sample by Psychological Aggression Status*

	Time 1			Time 2		Time 3		Time 4	
	Full Sample (n = 727)	No Psych Agg (n = 447)	Yes Psych Agg (n = 278)	No Psych Agg (n = 149)	Yes Psych Agg (n = 451)	No Psych Agg (n = 120)	Yes Psych Agg (n = 484)	No Psych Agg (n = 108)	Yes Psych Agg (n = 457)
Any psych agg - T1	0.38	--	1.00	0.11	0.48	0.15	0.45	0.17	0.43
Any psych agg - T2	0.75	0.64	0.93	--	1.00	0.34	0.86	0.34	0.84
Any psych agg - T3	0.80	0.73	0.92	0.44	0.91	--	1.00	0.44	0.89
Any psych agg - T4	0.81	0.74	0.92	0.51	0.91	0.46	0.90	--	1.00
Psych agg frequency - T1	2.68	--	2.68	2.11	2.72	1.96	2.75	2.54	2.82
Psych agg frequency - T2	3.63	3.21	4.10	--	3.63	2.36	3.75	2.70	3.75
Psych agg frequency - T3	3.80	3.37	4.32	2.36	4.01	--	3.80	2.55	3.89
Psych agg frequency - T4	3.69	3.40	4.05	2.70	3.88	2.50	3.82	--	3.69
Teen childbearing status	0.23	0.18	0.32	0.16	0.25	0.17	0.25	0.19	0.25
Child gender	0.54	0.52	0.56	0.54	0.54	0.53	0.54	0.44	0.54
Caregiver race - White	0.50	0.49	0.50	0.43	0.51	0.41	0.53	0.45	0.51
Caregiver race - Black	0.29	0.30	0.27	0.33	0.29	0.35	0.28	0.31	0.29
Caregiver race - Hispanic	0.15	0.15	0.14	0.19	0.13	0.19	0.12	0.15	0.13
Caregiver race - Other	0.07	0.06	0.08	0.05	0.07	0.05	0.07	0.08	0.07
Mental Health Score - T1	49.03	50.45	46.83	51.28	47.97	51.44	48.26	52.36	48.22
Mental Health Score - T2	49.10	20.25	47.25	52.48	47.98	53.15	48.27	51.59	48.90
Mental Health Score - T3	49.52	50.48	48.02	52.67	48.61	52.88	48.67	52.18	48.94
Mental Health Score - T4	49.56	50.35	48.43	50.93	49.10	51.96	48.81	51.94	48.99
Social Support Satis. - T1	3.41	3.42	3.40	3.50	3.38	3.48	3.40	3.56	3.38
Social Support Satis. - T2	3.23	3.25	3.20	3.30	3.21	3.37	3.20	3.27	3.25
Social Support Satis. - T3	3.23	3.26	3.17	3.31	3.21	3.25	3.22	3.20	3.22

Social Support Satis. - T4	3.24	3.24	3.25	3.28	3.25	3.34	3.24	3.37	3.22
Domestic Violence - T1	0.34	0.28	0.45	0.24	0.37	0.21	0.39	0.20	0.39
Domestic Violence - T2	0.23	0.19	0.30	0.09	0.28	0.13	0.26	0.15	0.24
Domestic Violence - T3	0.17	0.13	0.24	0.10	0.19	0.08	0.20	0.06	0.20
Domestic Violence - T4	0.18	0.16	0.22	0.13	0.20	0.11	0.20	0.09	0.20

Note. Psych agg = psychologically aggressive discipline; satis. = satisfaction; T1 = Time 1, T2 = Time 2, T3 = Time 3, T4 = Time 4.

Table 5  
*Descriptive Statistics for Study Sample by Physical Aggression Status*

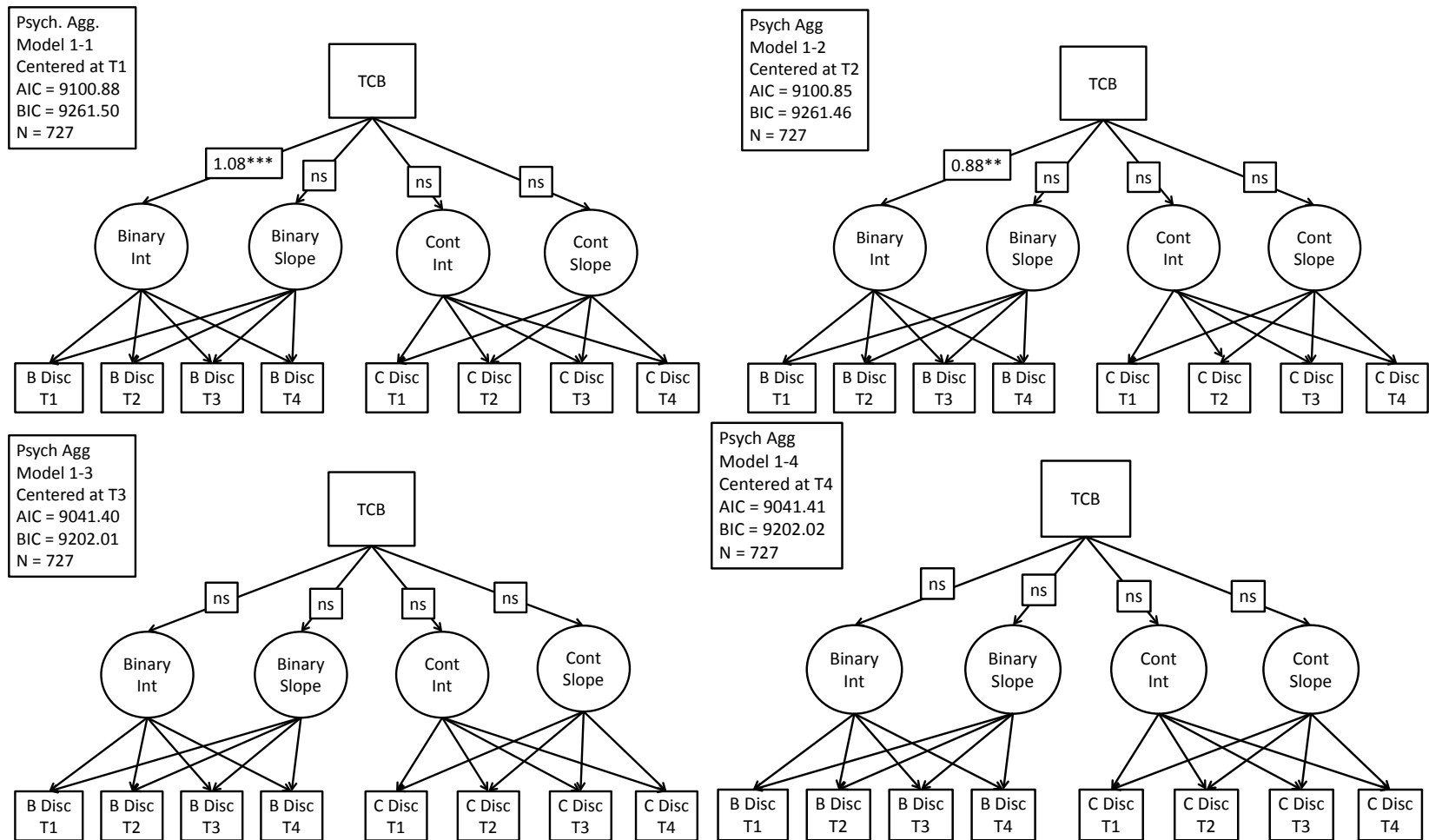
	Time 1			Time 2		Time 3		Time 4	
	Full Sample (n = 727)	No Phys Agg (n = 508)	Yes Phys Agg (n = 217)	No Phys Agg (n = 205)	Yes Phys Agg (n = 396)	No Phys Agg (n = 164)	Yes Phys Agg (n = 440)	No Phys Agg (n = 194)	Yes Phys Agg (n = 371)
Any phys agg - T1	0.30	--	1.00	0.11	0.41	0.16	0.37	0.18	0.38
Any phys agg - T2	0.66	0.56	0.87	--	1.00	0.27	0.82	0.42	0.81
Any phys agg - T3	0.73	0.67	0.86	0.39	0.89	--	1.00	0.46	0.89
Any phys agg - T4	0.66	0.59	0.80	0.38	0.78	0.29	0.78	--	1.00
Phys agg frequency - T1	2.43	--	2.43	1.62	2.49	1.69	2.50	2.15	2.51
Phys agg frequency - T2	3.12	2.83	3.54	--	3.12	2.28	3.22	2.54	3.30
Phys agg frequency - T3	3.17	3.12	3.26	2.29	3.37	--	3.17	2.42	3.39
Phys agg frequency - T4	2.84	2.74	2.99	2.45	2.98	2.32	2.92	--	2.84
Teen childbearing status	0.23	0.19	0.32	0.18	0.26	0.23	0.24	0.20	0.25
Child gender	0.54	0.53	0.56	0.53	0.54	0.54	0.53	0.49	0.54
Caregiver race - White	0.50	0.47	0.55	0.40	0.54	0.45	0.53	0.49	0.50
Caregiver race - Black	0.29	0.31	0.24	0.35	0.27	0.36	0.27	0.30	0.29
Caregiver race - Hispanic	0.15	0.16	0.12	0.19	0.12	0.14	0.13	0.10	0.15
Caregiver race - Other	0.07	0.06	0.09	0.06	0.07	0.05	0.08	0.10	0.06
Mental Health Score - T1	49.03	50.05	46.74	50.38	48.00	52.10	47.70	51.43	47.74
Mental Health Score - T2	49.10	49.82	47.43	51.63	47.81	51.76	48.32	50.96	48.58
Mental Health Score - T3	49.52	50.27	47.91	51.53	48.69	51.82	48.65	51.99	48.22
Mental Health Score - T4	49.56	50.15	48.45	49.98	49.34	50.31	49.10	51.94	48.30
Social Support Satis. - T1	3.41	3.43	3.36	3.46	3.38	3.47	3.40	3.44	3.40
Social Support Satis. - T2	3.23	3.25	3.20	3.26	3.22	3.30	3.22	3.29	3.24
Social Support Satis. - T3	3.23	3.24	3.21	3.25	3.22	3.26	3.22	3.18	3.23
Social Support Satis. - T4	3.24	3.26	3.22	3.30	3.24	3.30	3.24	3.34	3.20

Domestic Violence - T1	0.34	0.29	0.47	0.21	0.40	0.21	0.40	0.31	0.38
Domestic Violence - T2	0.23	0.20	0.31	0.12	0.29	0.12	0.28	0.13	0.27
Domestic Violence - T3	0.17	0.12	0.28	0.10	0.20	0.09	0.21	0.08	0.22
Domestic Violence - T4	0.18	0.16	0.23	0.13	0.21	0.13	0.21	0.09	0.23

Note. phys agg = psychologically aggressive discipline; satis. = satisfaction; T1 = Time 1, T2 = Time 2, T3 = Time 3, T4 = Time 4.

Table 6  
*Latent Variable Means and Variances for Latent Growth Curve Models*

Psychologically Aggressive Discipline								
	Uncond.	Model 1-1	Model 1-2	Model 1-3	Model 1-4	Model 2-DV	Model 2-MH	Model 2-SS
AIC	9108.15	9100.88	9100.85	9041.40	9041.41	6810.26	6656.35	6778.31
BIC	9176.98	8261.50	9261.46	9202.01	9202.02	7005.34	6851.13	6973.59
Binary								
Intercept Mean	0.00	0.23	0.13	0.03	-0.09	-0.25	-0.26	-0.17
Slope Mean	1.15***	1.22***	1.23***	1.06***	1.06***	1.05***	0.80*	0.98**
Intercept Variance	2.67**	2.28*	4.33***	8.51***	14.33***	2.67*	6.51**	6.62***
Slope Variance	0.85***	0.83***	0.82***	0.49***	0.49***	0.54**	0.30*	0.27
Continuous								
Intercept Mean	2.80***	2.50***	2.90***	3.33***	3.82***	2.46***	2.69***	2.36***
Slope Mean	0.18***	0.26***	0.26***	0.33***	0.33***	0.24**	0.33*	0.33*
Intercept Variance	1.21***	1.11***	1.40***	2.02***	2.72***	1.64***	1.75***	1.82***
Slope Variance	0.04	0.04	0.04	0.04	0.04	0.07**	0.09***	0.08**
Physically Aggressive Discipline								
	Uncond.	Model 1-1	Model 1-2	Model 1-3	Model 1-4	Model 2-DV	Model 2-MH	Model 2-SS
AIC	8115.94	8105.62	8105.61	8061.26	8061.25	6173.25	5927.83	6044.64
BIC	8184.77	8266.23	8266.23	8221.88	8221.86	6368.33	6122.60	6239.92
Binary								
Intercept Mean	0.00	-0.07	-0.02	0.03	0.05	-0.28	-0.39	-0.36
Slope Mean	0.71***	0.68***	0.68***	0.62***	0.63***	0.45***	0.67*	0.50
Intercept Variance	1.08	0.81	3.12***	7.21***	12.83***	1.18	6.27**	6.71**
Slope Variance	0.64***	0.64***	0.65***	0.37***	0.38***	0.36*	0.34*	0.29*
Continuous								
Intercept Mean	2.72***	2.57***	2.64***	2.71***	2.82***	2.45***	2.98***	2.67***
Slope Mean	0.02	0.04	0.05	0.08	0.07	0.05	0.02	0.15
Intercept Variance	0.86***	0.80**	0.99***	1.33***	1.76***	0.81**	0.98***	0.91**
Slope Variance	0.02	0.02	0.02	0.02	0.02	0.04	0.06**	0.05*



*Figure 1.* Psychologically Aggressive Discipline Models 1-1 through 1-4. All coefficients are unstandardized. ns = non-significant coefficient. TCB = teen childbearing. Models also control for child gender and maternal race, but coefficients are not shown; models contain correlations between latent intercept and slope terms, but are not shown.

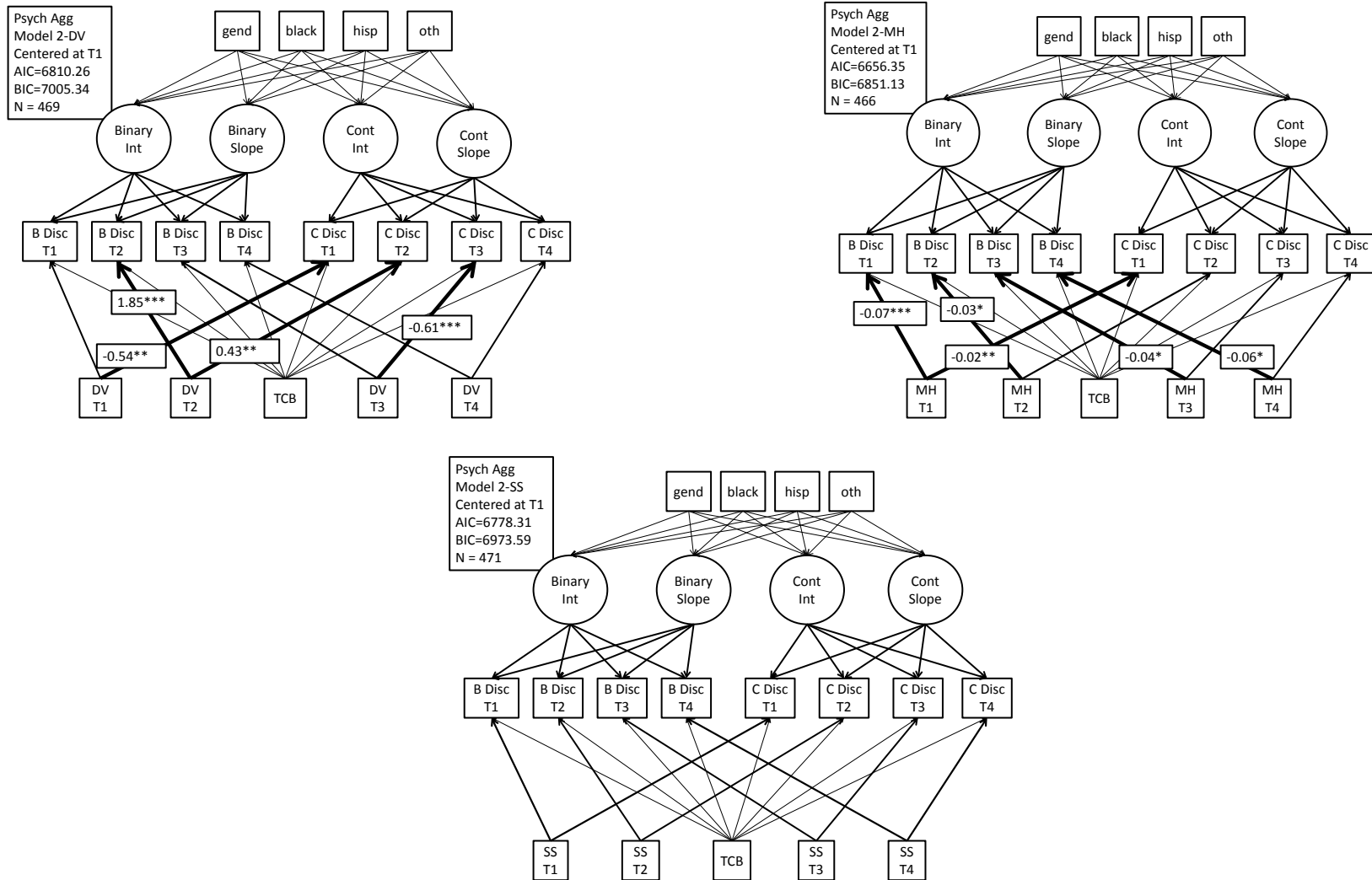
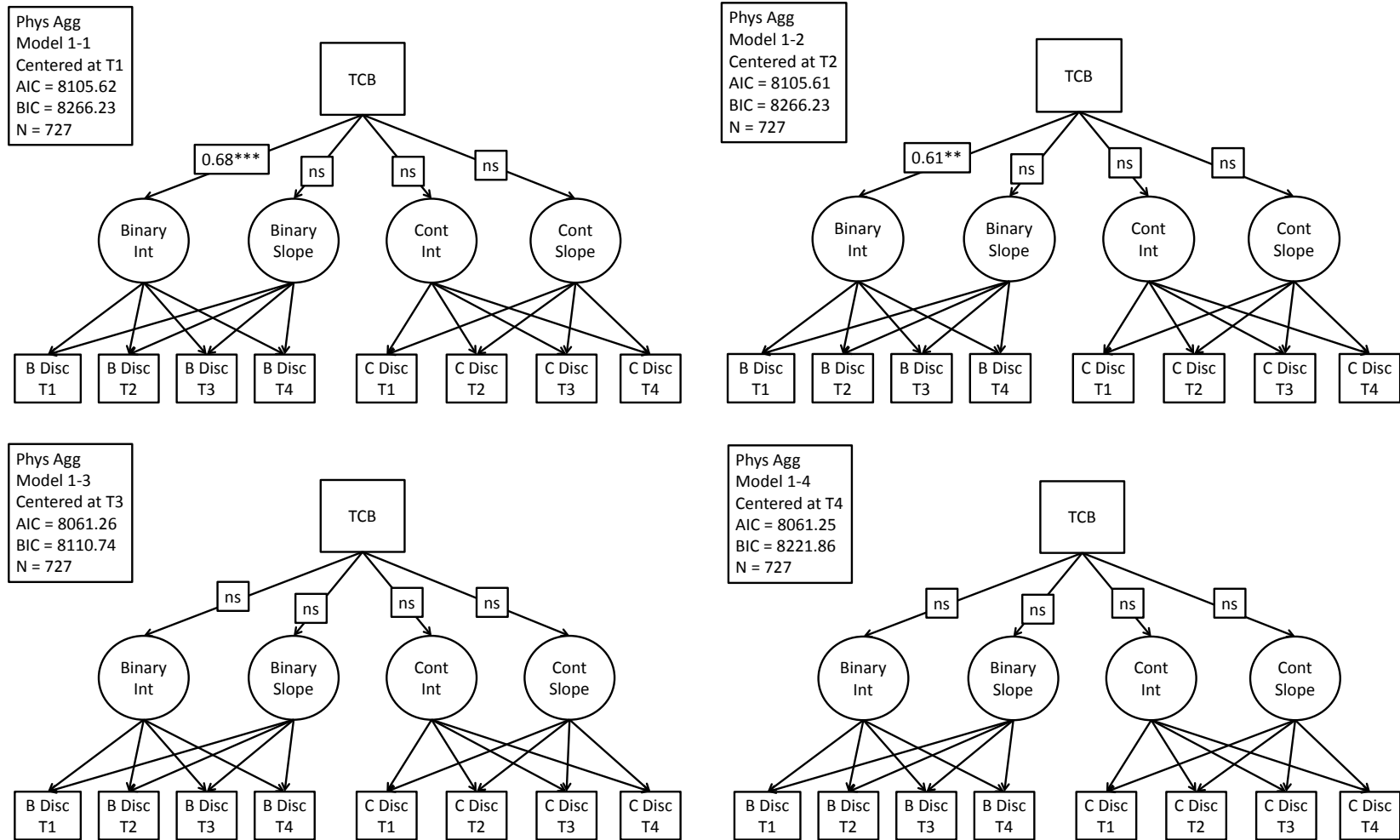


Figure 2. Psychologically Aggressive Discipline Models 2-DV, 2-MH, and 2-SS. All coefficients are unstandardized. Solid bold lines indicate a significant relation for time-varying covariates. Path coefficients between baseline and latent variables, between teen childbearing and latent variables, and correlations between latent intercept and slope terms are included, but not shown.





*Figure 3.* Physically Aggressive Discipline Models 1-1 through 1-4. All coefficients are unstandardized. ns = non-significant coefficient. TCB = teen childbearing. Models also control for child gender and maternal race, but coefficients are not shown; models contain correlations between latent intercept and slope terms, but are not shown.

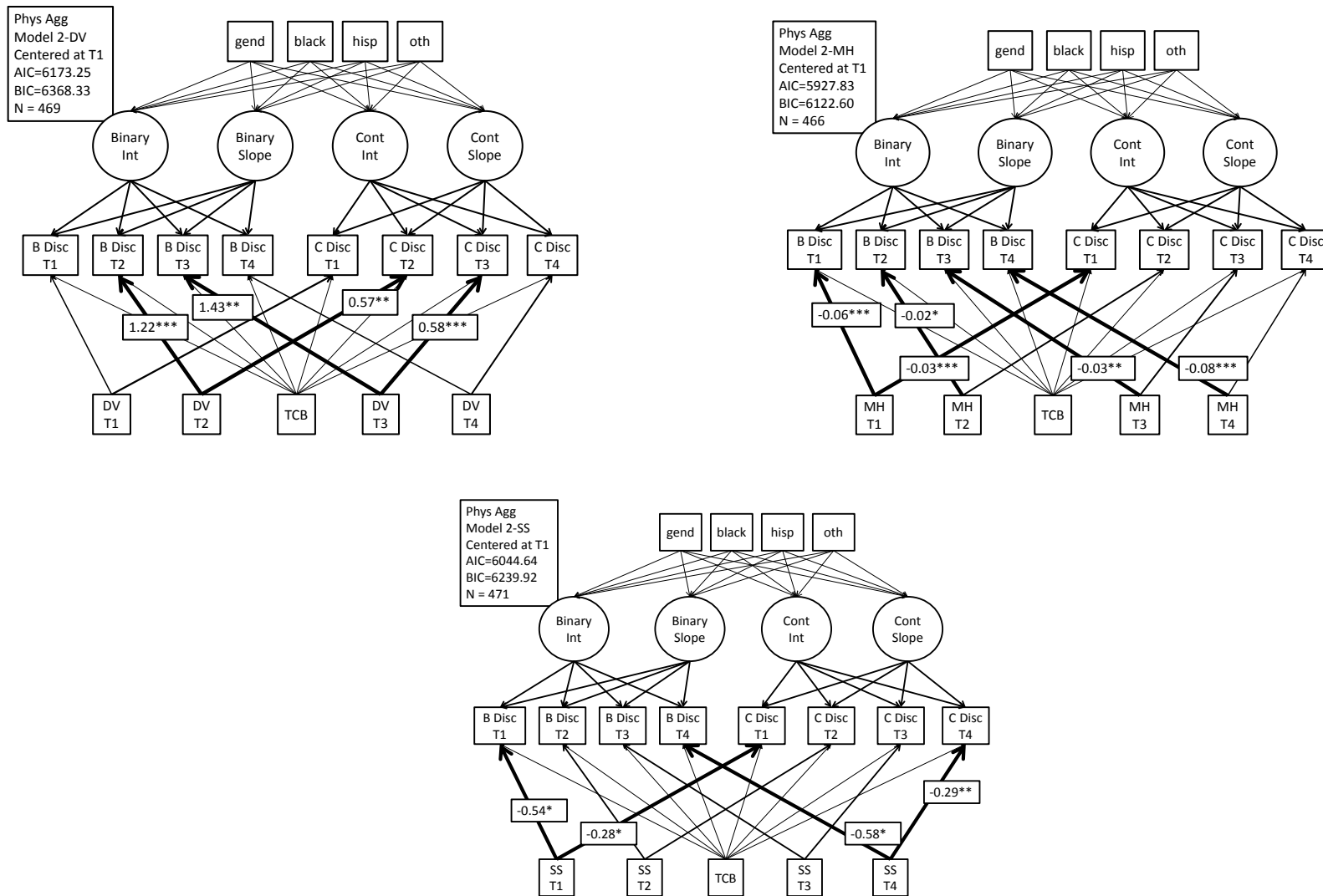


Figure 4. Physically Aggressive Discipline Models 2-DV, 2-MH, and 2-SS. All coefficients are unstandardized. Solid bold lines indicate a significant relation for time-varying covariates. Path coefficients between baseline and latent variables, between teen childbearing and latent variables, and correlations between latent intercept and slope terms are included, but not shown.

## **CHAPTER 4**

### **Joint Trajectories of Maladaptive and Adaptive Parenting Behaviors in a Sample of Adolescent Mothers**

### **Abstract**

Research indicates that, compared to older mothers, adolescent mothers are less likely to exhibit adaptive parenting behaviors such as responsiveness and engagement, and more likely to exhibit maladaptive parenting behaviors such as spanking and aggressive discipline. Yet it is unclear to what extent adolescent mothers engage in adaptive and maladaptive parenting behaviors jointly, whether their joint patterns of these parenting behaviors are consistent over time, and the extent to which their joint parenting trajectories vary. Therefore, research is needed to examine the heterogeneity of the longitudinal joint-patterns (i.e., joint trajectories) of adolescent mothers' maladaptive and adaptive parenting behaviors, and explore the factors associated with such joint trajectories. This study used data from the Fragile Families and Child Wellbeing study to investigate the joint trajectories of adaptive (verbal engagement) and maladaptive (spanking) parenting practices and the factors associated with different parenting patterns in a sample of adolescent mothers ( $N = 769$ ). Joint longitudinal cluster analyses revealed three parenting trajectories with Cluster 1 exhibiting high levels of verbal engagement and spanking, Cluster 2 exhibiting high levels of verbal engagement and low levels of spanking, and Cluster 3 exhibiting low levels of verbal engagement and moderate to high levels of spanking. Furthermore, high child emotionality, high parenting stress, and low household income differentiated the clusters, but a cumulative stress index did not. Findings suggest that the parenting trajectories of adolescent mothers do vary over time, and that mothers feeling overwhelmed by the parenting role and that have fewer economic resources may engage in a more maladaptive pattern of parenting over time. These mothers may benefit from additional supportive services in order to prevent a more risky pattern of parenting from developing.

Adolescent motherhood has been linked to poor parenting behaviors (Conger, McCarty, Yang, Lahey, & Burgess, 1984; Connelly & Straus, 1992; Garcia Coll, Hoffman, & Oh, 1987; Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010) and less adaptive child outcomes (Moore & Brooks-Gunn, 2002; Fergusson & Woodward, 1999; Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001; Mollborn & Dennis, 2010). Yet, prior research on the parenting behaviors of adolescent mothers has suffered from three major limitations. First, studies have tended to take a unidimensional view of adolescent parenting, as few investigations have examined to what degree they use different types of adaptive and maladaptive parenting behaviors jointly. Second, adolescent mothers' parenting has tended to be treated as homogenous; few within-group investigations have elucidated differences among adolescent mothers. Third, teen parenting behaviors have largely been examined cross-sectionally. A longitudinal investigation of how adolescent mothers' maladaptive and adaptive parenting behaviors are used jointly could uncover subgroups of mothers who are likely to engage in more risky patterns of parenting and subgroups that may be doing well. Linking child, maternal, and familial stressors to parenting patterns also may yield implications for intervention programs and direct practitioners. The current study investigates the longitudinal joint-patterns (i.e., joint trajectories) of adaptive and maladaptive parenting behaviors in a sample of adolescent mothers with the aim of determining whether groups of mothers can be characterized by different patterns of scores on the two parenting behaviors over child ages 1, 3, and 5. The study further aims to investigate the extent to which stressors or the cumulative burden of stressors can distinguish between the types of joint trajectories.

### **Maladaptive and Adaptive Parenting Behaviors of Adolescent Mothers**

Maladaptive parenting behaviors such as corporal punishment have been linked to greater externalizing and internalizing behavior problems (Durrant, 2008; Gershoff, 2002; Maguire-Jack, Gromoske, & Berger, 2012; Paolucci & Violato, 2004; Turner & Muller, 2004). Similarly, psychologically aggressive parenting behaviors such as yelling and threatening have been associated with physical aggression, interpersonal problems, poorer school outcomes, and lower self-esteem (Gross, & Keller, 1992; Solomon & Serres, 1999; Vissing, Straus, Gelles, & Harrop, 1991). Research has demonstrated that adolescent mothers generally use maladaptive parenting practices more frequently than do older mothers. Conger, McCarty, Yang, Lahey, and Burgess (1984) found that younger mothers were more critical and used more physical punishment than older mothers. Fox, Platz, & Bentley (1995) found that younger mothers were more likely than older mothers to use frequent discipline with their children. Furthermore, adolescent mothers have also been found to use a greater amount of spanking and harsher forms of physical discipline than adult mothers (Huang & Lee, 2008; Lee, 2009; Lee & Guterman, 2010).

Conversely, adaptive parenting behaviors such as reading, storytelling, and reciting nursery rhymes promote children's language development and emergent literacy (Bus, van Ijzendoorn, & Pellegrini, 1995; Dickinson & Tabors, 1991; Raikes et al., 2006; Snow & Dickinson, 1990). In addition, mothers' stimulation, speech, and responsivity in the first years of life predict children's receptive language, phonological awareness, and story comprehension (Beals & DeTemple, 1993; Hann, Osofsky, & Culp, 1996; Silven, Niemi, & Voeten, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Adolescent mothers tend to use lower amounts of adaptive parenting behaviors in comparison to adult mothers. Barratt and Roach (1995) found that adolescent mothers were less vocally responsive, smiled less,

and showed toys less frequently with their infants than adult mothers. Other studies have shown adolescent mothers, in comparison to adult mothers, display less expressiveness (Culp, Culp, Osofsky, & Osofsky, 1991), use fewer vocalizations (Garcia Coll, Hoffman, & Oh, 1987; Pomerleau, Scuccimarri, & Malcuit, 2003), and tend to be less responsive (Garcia Coll, Hoffman, & Oh, 1987). In addition, Mollborn and Dennis (2010) found that adolescent mothers spent slightly less time than adult mothers in activities such as reading books or singing songs with their child.

### **Stressors and their Relation to Parenting Behaviors**

Stress theory (e.g., Pearlin, Menaghan, Lieberman, & Mullan, 1981) suggests that sources of stress that tax or exceed available coping resources increase the likelihood of less adaptive parenting behaviors. The extant literature has revealed that many child, maternal, and familial stressors increase the likelihood of poorer parenting outcomes. Difficult child temperament has been related to poorer types of parenting behaviors (Day, Peterson, & McCracken, 1999; Dukewich, Borkowski, & Whitman, 1996). Maternal depressive symptoms (Albright & Tamis-LeMonda, 2002; Lee, 2009), alcohol and other drug abuse (Jaudes, Ekwo, & Van Voorhis, 1995; Walsh, MacMillan, & Jamieson, 2003), high maternal fertility (Zuravin, 1988; Zuravin & DiBlasio, 1996), the unplanned nature of the child's birth (Zuravin, 1987; 1988), and high parenting stress (e.g., Pinderhughes, Dodge, Zelli, Bates, & Pettit, 2000) tend to be associated with poorer parenting outcomes. In addition, low household income (Garrett, Ng'andu, & Ferron, 1994; Smith & Brooks-Gunn, 1997; Straus & Stewart, 1999) and living in an unsafe neighborhood (Huang & Lee, 2008; McDonnell, 2007) are risks for poorer parenting.

Cumulative levels of stress are also posited to have a greater negative influence than a

single stressor (e.g., Rutter, 1979) on parenting behaviors (Cicchetti & Rizley, 1981).

MacKenzie, Kotch, and Lee (2011) found that a cumulative risk index comprised of 10 maternal, familial, and neighborhood factors was predictive of child maltreatment, and was a better predictor of maltreatment than the majority of the individual items included in the risk index. Similarly, Lansford et al. (2009) found that the cumulative burden of low socioeconomic status, high family stress, and single-parent status differentiated between a group of parents who exhibited moderate, decreasing levels of harsh physical discipline and a group of parents who exhibited minimal and ceasing levels of harsh physical discipline, with the moderate, decreasing group facing greater cumulative stress.

### **Contributions of the Current Study**

Although research on the parenting behaviors of adolescent mothers suggests that they use more maladaptive and less adaptive parenting behaviors than adult mothers, there are three areas of research on adolescent parenting that are underdeveloped. First, there has been limited investigation into within-group variability of parenting among adolescent mothers (for an exception see, Whiteside-Mansell, Pope, & Bradley, 1996). Second, no known studies have examined how adolescent mothers use maladaptive and adaptive parenting behaviors jointly.

Third, it is unclear how adolescent mothers' parenting practices may change over time. As developmental theory would suggest (Lerner, Rothbaum, Boulos, & Castellino, 2002), and as empirical evidence on adult samples demonstrates, maladaptive types of parenting behaviors (Kim, Pears, Fisher, Connelly, & Landsverk, 2010; Lansford et al., 2009; McNally, Eisenberg, & Harris, 1991; Socolar, Savage, & Evans, 2007), as well as adaptive parenting behaviors (Belsky, Gilstrap, & Rovine, 1984; Bradley, Corwyn, McAdoo, & Coll,



2001; Dallaire & Weinraub, 2005) change over time. The changes may be in response to changes within the child, changes within the parent, or the influence of other factors on the child, parent, or parent-child relationship. The parenting of *adolescent* mothers may change over time as well, given that they are learning from their own parenting experiences and are still developing from adolescents into adults.

Taking these three ideas together, it follows that there may be subgroups of adolescent mothers who follow similar joint-patterns of parenting over time. For example, there may be one sub-group of mothers that displays high levels of maladaptive and adaptive parenting practices over time, and one that may displays increasing levels of maladaptive and consistently high levels of adaptive parenting practices over time. Theoretically, examining the joint-patterns better reflects reality – children experience multiple dimensions of parenting, not just one component. Furthermore, examining the patterns longitudinally may reveal that some groups of adolescent mothers consistently use a certain pattern of parenting over time whereas others might develop into or out of a less desirable pattern of parenting (e.g., high levels of maladaptive and low levels of adaptive parenting behaviors). Examining the child, maternal, and familial stressors, or the accumulation of stressors, identified early in the parent-child relationship may distinguish between the joint trajectories of parenting, and this knowledge could be applied in prevention and intervention programs for young parents.

The current study aims to determine if there are subgroups of mothers who follow similar joint trajectories of adaptive and maladaptive parenting behaviors over child ages 1, 3, and 5. The study also investigates whether child, maternal, and familial stressors identified early in the parent-child relationship distinguish between the joint trajectories identified. Finally, this study investigates whether the cumulative burden of stressors, as measured by

the sum of child, maternal, and family stressors differentiates the trajectory groups.

## **Method**

### **Participants & Data**

The FFCW dataset consists of nearly 5,000 children and their families. The study was designed to over-sample children born to unmarried parents, and thus it includes a larger proportion of low-income children than expected in a nationally representative sample (see Reichman, Teitler, Garfinkel, & McLanahan, 2001, for a complete description of sampling procedures). Because the sample is economically disadvantaged overall, FFCW children may be at greater risk for experiencing poorer parenting than the general U.S. population (Conger, Wallace, Sun, Simons, McLoyd, & Brody, 2002; Day, et al., 1999). The FFCW study collected data from families at five time points: when children were born, and at ages 1, 3, 5, and 9. Parents provided information about parenting behaviors, family and household characteristics, child health and functioning, caregiver physical and mental health, and neighborhood characteristics through telephone interviews and in-home visits.

A family was included in the current sample if: (1) the mother was aged 19 or younger at the time of the focal child's birth, and (2) the family had non-missing outcome data on at least two of the three telephone interviews at age 1, 3, or 5. Of the 4,898 families in the FFCW study, about 17% ( $n = 845$ ) met the first criterion. Of the 845 families meeting the first criterion, 91% met the second criterion, leading to an analytic sample of 769 families. The sample was primarily Black (54.9%) or Hispanic (26.8%), with a minority of White (16.3%) and "other" (2.9%) race mothers. Mothers' average age at the child's birth was 18.21 years ( $SD = .99$ ).

### **Measures**

**Dependent variables.** Measures of adaptive and maladaptive parenting practices

were drawn from survey items that were consistent across the three ages. Maladaptive parenting was operationalized by the mother's frequency of spanking, which is a prevalent disciplinary measure used to enforce rules and control child behavior in the U.S. (Straus & Stewart, 1999). Adaptive parenting was operationalized by items measuring the mother's verbal engagement with the child.

***Spanking.*** During each interview at ages 1, 3, and 5 the focal child's mother reported whether she had spanked the child in the past month, and, if so, the frequency with which she had done so. The frequency of spanking was reported on a 5-point scale ranging from 0-*"never in the past month,"* to 1-*"once or twice,"* 2-*"a few times this past month,"* 3-*"a few times a week,"* to 4-*"every day or nearly every day."*

***Verbal engagement.*** Mothers also reported how often they engaged in certain age-appropriate activities with their child at the age 1, 3, and 5 interviews. The frequency of verbal engagement was measured using the average number of times per week the mother engaged in verbal activities with the child, including reading stories, telling stories, and singing songs or nursery rhymes ( $\alpha = 0.69$  at age 1, 0.70 at age 3, and 0.62 at age 5).

***Child, maternal, & familial stressors.*** Variables that represented stressors were selected based on prior research that suggested that they were likely to either increase the likelihood of maladaptive parenting behaviors or decrease the likelihood of adaptive parenting practices.

***Difficult child temperament.*** A measure of child temperament, which reflects the tendency for the child to become easily and intensely aroused, was created from three items from the Emotionality, Activity, and Shyness scale (EAS; Mathieson & Tambs, 1999) at child age 1. The items were summed to create an emotionality score, with higher scores

indicating more emotionality ( $\alpha = 0.58$ ). Then, the variable was dichotomized, with scores greater than or equal to 11 (top 25<sup>th</sup> percentile) indicating high emotionality (= 1), and scores less than 11 indicating low to average emotionality (= 0).

***Mother considered abortion.*** The FFCW asked mothers at baseline whether she had considered an abortion for the focal child, which might indicate the planned nature of the pregnancy. Literature has linked unplanned pregnancy to a greater likelihood of child maltreatment (Zuravin, 1987; 1988). Mothers who indicated that they had considered an abortion were coded as 1, and those who had not considered an abortion as 0.

***Maternal depression.*** In addition, the FFCW assessed mothers for depression at child age 1 using seven items from the Composite International Diagnostic Interview, Short Form (CIDI-SF), Section A (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). The FFCW created an indicator of whether the mother was likely to be depressed (= 1) or not (= 0) based on her answers to the CIDI-SF.

***High maternal parenting stress.*** Mothers were asked four questions at child age 1 to assess their parenting stress, including “Being a parent is harder than I thought it would be,” “I feel trapped by my responsibilities as a parent,” “I find that taking care of my child(ren) is much more work than pleasure,” and “I often feel tired, worn out, or exhausted from raising a family.” Items were scored on a 4-point scale, where 1 = *strongly agree*, 2 = *somewhat agree*, 3 = *somewhat disagree*, and 4 = *strongly disagree*. FFCW drew these items from Child Development Supplement of the Panel Study of Income Dynamics. As suggested by the FFCW, the four items were averaged to indicate the overall amount of parenting stress mothers felt, with lower scores indicating greater stress ( $\alpha = 0.59$ ). In this study, the variable was dichotomized to indicate high parenting stress, with scores in the lowest 25<sup>th</sup> percentile

( $\leq 2.25$ ) coded as 1 and scores greater than 2.25 coded as 0.

**Maternal ATOD use.** FFCW asked mothers three questions at baseline that assessed the degree to which they drank alcoholic beverages, used drugs such as marijuana, crack cocaine, or heroine, and smoked cigarettes during their pregnancy with the focal child. For the purposes of the current study, maternal alcohol, tobacco, or other drug use (ATOD) was coded as 1 if mothers indicated that they had used any of the substances during their pregnancy and 0 if not.

**High number of children.** Mothers were asked at baseline if they had any other biological children at the time of the focal child's birth. Because this was a sample of young mothers, having two or more children by the age of 19 was viewed as having a high number of children. Mothers who indicated that they had two or more biological children at baseline were coded as 1, and those who indicated that the focal child was their first child were coded as 0.

**Low household income.** FFCW created poverty-line categories for each respondent, based on their household income and household size at baseline. For the current study, mothers whose poverty category indicated the household was living below 100% of the poverty line were coded as 1 and those at or above 100% of the poverty line were coded as 0.

**Unsafe neighborhood.** FFCW assessed neighborhood safety at baseline with an item asking the mother how safe the streets of the neighborhood were at night, with responses on a 4-point scale. Mothers who reported that the streets were either unsafe or very unsafe were coded 1; all other responses were coded 0.

**Cumulative stress index.** To explore whether the additive burden of stress was related to mothers' joint parenting pattern, a cumulative stress index was created by summing the

above risk factors for each mother. Hence, risk scores could range from 0 to 8. If mothers were missing information on any of the risk variables, the missing data were treated as zeros.

### **Statistical Analyses**

Data analyses proceeded in three steps. First, descriptive statistics (e.g., mean; standard deviation) for all variables included in the study were computed. Second, the *k*-means cluster analytic approach for joint longitudinal data was used to identify clusters of mothers who followed similar longitudinal patterns of adaptive and maladaptive parenting practices, which was the only clustering approach known to the author that could simultaneously cluster two longitudinal variables. Third, MANOVA was used to test whether any factors might differentiate the trajectory groups. The MANOVA indicated a significant effect and a discriminant function analysis was performed in order to detect which stressors contributed most to the differences between the groups. ANOVA was used to examine differences in scores on the cumulative stress index by trajectory group.

Following the calculation of descriptive statistics, I estimated longitudinal joint-patterns (i.e., trajectories) of adaptive and maladaptive parenting using a statistical package for *k*-means cluster analysis for joint longitudinal data (package is *KmL3D*; Genolini, Pingault, Driss, Cote, Tremblay, Vitaro, Arnaud, & Falissard, 2013) in the R software program (R Development Core Team, 2005). In this procedure, participants who are generally homogenous in their parenting behavior over time are assigned to a given trajectory. In this study, I employed a three-dimensional version of the procedure to estimate joint trajectories that relied on the repeated assessments of both spanking and verbal engagement. If any mother was missing data on either of the outcomes at any time point, a procedure in *KmL3D* referred to as “copyMean” was used to impute values as a linear

interpolation. The copyMean procedure also adds variation based on values of the mean trajectory at the time point of the missing data to make the individual's trajectory follow the shape of the mean, or group, trajectory (see Genolini & Falissard, 2011 for a description and equation). KmL3D follows a three-step procedure for generating the clusters. First, the data are converted to an R object and values of each variable are normalized. Then, KmL3D uses a *k*-means algorithm to partition joint trajectories into subgroups, and calculates the percentage of the sample falling into each trajectory group. The algorithm also calculates several quality criteria, primarily relying on the Calinski and Harabasz criterion (1974) to help determine the best number of trajectory groups, although it is not possible to know the optimum number of trajectory groups. Finally, the procedure allows the user to select the trajectory group solution that best represents the data or hypothesized clusters and that has the best quality criteria.

Finally, the characteristics of the trajectory groups were examined in SAS 9.2. MANOVA, followed by a discriminant function analysis, was used to examine multivariate differences in means of the stressors across the trajectory groups. In addition, ANOVA was used to analyze whether the cumulative stress index differentiated among the trajectory groups.

## **Results**

### **Descriptive Statistics**

Descriptive statistics are presented in Table 7. Overall, mothers in the sample increased their use of spanking from child age 1 to 3, and subsequently decreased their use slightly from child age 3 to 5. The sample showed a similar pattern of change in verbal engagement over the same ages, with an average of 4.5 days per week at age 1, up to nearly 5

days per week at age 3, and then down to about 4.6 days per week at age 5. Reflecting the disadvantaged composition of the sample, about 43% of participants were living below the poverty line at baseline. Generally, about 20-30% of the sample met the criteria for any of the other stressors. The average number of stressors was 2.13, with 64% of the sample having zero to two risks.

### **Joint Longitudinal Parenting Patterns**

Two, three, and four joint trajectory group solutions were tested, and based on the Calinski and Harabasz criterion (1974), the Ray-Turi criterion (Ray & Turi, 2000), the Davies-Bouldin criterion (Davies & Bouldin, 1979), the Bayesian Information Criterion (BIC; Banfield & Raftery, 1993), and the average posterior probabilities, the two-cluster and three-cluster solutions were both a close fit. To determine which would describe the data the best, I performed longitudinal *k*-means cluster analysis on each outcome separately. These results revealed that for verbal engagement, a two-group solution described the data best; however, a three-group solution for spanking described the data best. I chose the three-group solution for the joint trajectory analysis in order to account more accurately for the different spanking trajectories, because it was clear that the three spanking trajectory groups had very different patterns of spanking use over time. Had only a two-group solution been selected, these differences in spanking trajectories would have been less distinct. This choice resulted in two groups that shared similar verbal engagement trajectories in the joint trajectory analysis, but that had different spanking trajectories.

Average unstandardized group means across time for the two outcomes are presented in Table 8. A graph depicting the standardized joint trajectories for each cluster is presented in Figure 5. The three-group solution revealed that approximately 36% of the sample



followed a joint trajectory in which verbal engagement was high and fairly stable over time, while at the same time spanking increased over the age 1 to 3 period and then slightly decreased from age 3 to 5 (Cluster 1). Cluster 2 comprised about 33% of the sample and followed a joint trajectory in which verbal engagement was also high and stable over time, but spanking was rare over time. Finally, about 30% of the sample comprised Cluster 3, and followed a trajectory in which verbal engagement was low and slightly increased over time, and spanking was moderate to high and slightly increased over time.

### **Stressors and Cumulative Burden**

Table 9 provides bivariate descriptions of each joint trajectory group by each stressor. Due to missing data on some of the stressors, only 632 mothers were included in the MANOVA and discriminant function analysis because the procedures require no missing data. MANOVA results indicated an overall significant difference between the clusters for the set of stressors based on Wilks' Lambda (.95,  $F[16, 1244] = 1.83, p = 0.023$ ).

Discriminant function analysis was performed to determine which of the stressors most significantly differentiated the three groups. As the MANOVA indicated, there was only one significant function based on Wilks' Lambda (.95,  $F[16, 1244] = 1.83, p = 0.023$ ). The discriminant function was associated with 79.3% of the between-group variability. Table 10 shows the structural coefficients for the discriminant function. Structural coefficients greater than .32 are generally considered to be interpretable (Comrey & Lee, 1992). Three stressors were the most highly correlated with the discriminant function – high child emotionality, high parenting stress, and low household income – and were interpreted as the major contributors to group separation. The joint trajectory group means on the discriminant function revealed that Cluster 3 ( $M = 0.271$ ) had the highest score which indicated that many

of these mothers had low household income, high parenting stress, and highly emotional children. Cluster 1 had the lowest score ( $M = -0.195$ ), indicating that fewer of these mothers reported low household income, high parenting stress, and high child emotionality. Cluster 2 had a score close to zero ( $M = -0.030$ ), indicating that the proportion of mothers experiencing low household income, high parenting stress, and highly emotional children fell somewhere in between that of Cluster 1 and Cluster 2. As a robustness test, the MANOVA and discriminant function analysis were performed on the same variables using available continuous measures of child emotionality, neighborhood safety, parenting stress, household income, as well as the same dichotomous measures of mother considered an abortion, maternal depression, ATOD use, and high number of children. The MANOVA test was highly significant (Wilks' Lambda = 0.93,  $F[1, 1244] = 2.79$ ,  $p = 0.0002$ ), and the structural coefficients from the discriminant function analysis supported prior results indicating that child emotionality, parenting stress, and household income discriminated between the clusters.

The ANOVA performed to determine if the cumulative burden of the stressors differentiated the parenting clusters revealed no significant differences between the clusters ( $F[2, 766] = 2.34$ ,  $p = 0.097$ ). The mean for the cumulative stress index for Cluster 1 was 2.09 ( $SD = 1.53$ ), 2.02 ( $SD = 1.37$ ) for Cluster 2, and 2.30 ( $SD = 1.51$ ) for Cluster 3.

### **Discussion**

The present study investigated (1) whether subgroups of adolescent mothers follow similar joint trajectories of adaptive and maladaptive parenting behaviors over child ages 1, 3, and 5, and (2) whether certain stressors identified early in the parent-child relationship, or the cumulative burden of stressors, could distinguish between the joint trajectories identified.

Three subgroups of joint trajectories of parenting were identified, and three stressors discriminated between the subgroups, while the cumulative stress index did not.

Three joint trajectories of parenting were identified. Mothers in Cluster 1 exhibited, on average, 5 to 6 days per week of verbal engagement with their children over time, and generally increased their spanking from about once or twice a month to a few times a week over the age 1 to 3 period, and subsequently decreased their spanking at age 5 to about a few times a month. The changes in spanking are similar to those of other studies, which have found that spanking increases up until ages 3 to 5 and subsequently decreases (Giles-Sims et al., 1995; Regalado, et al., 2004; Socolar et al., 2007; Straus & Stewart, 1999). Mothers in Cluster 2 were similar to mothers in Cluster 1 in their verbal engagement with their children. They engaged in approximately 5 to 6 days per week of verbal engagement over time. Nevertheless, mothers in Cluster 2 rarely spanked their children. Finally, Cluster 3 included mothers who verbally engaged with their children much less frequently than what mothers in Cluster 1 and 2 reported – only about 3 days per week. Furthermore, Cluster 3 mothers exhibited a slight increase over time in their spanking behavior – once or twice to a few times in the past month. Compared to the other clusters, these mothers exhibited much lower levels of verbal engagement and higher levels of spanking.

The joint parenting trajectory analyses suggest that many adolescent mothers adapt their parenting behavior over time. The finding that spanking frequency changed over time for two of the three clusters is evidence to support the notion from developmental theory (Lerner et al., 2002) that even adolescent parents adapt their parenting behavior over time. It also aligns with research that has been conducted with adult parents that has shown they adapt their parenting behaviors over time (e.g., Dallaire & Weinraub, 2005; Kim, Pears,

Fisher, Connelly, & Landsverk, 2010). Nevertheless, it is curious that all mothers' verbal engagement tended to be stable over time. This seems to go against theory and prior research, but it is possible that changes in specific activities could have been masked because the measure was a composite of a number of items.

In addition, the joint trajectory analysis shows that not all adolescent mothers parent in the same way. The findings of three joint clusters demonstrates the heterogeneity of adolescent mothers' parenting behaviors. The results highlighted important differences between the groups. Mothers in Clusters 1 and 3 reported spanking their 1-year-old children on average a few times per month, whereas Cluster 2 reported almost no spanking over time. Maternal spanking of infant children is atypical (Straus & Stewart, 1999), and it is particularly concerning because infants have limited capacity to understand why they are being spanked and/or to alter their behavior (Kopp, 1982). There was also heterogeneity in the frequency with which the mothers verbally engaged with their children. Cluster 3 engaged in low levels over time compared to Clusters 1 and 2. Furthermore, the joint patterns showed heterogeneity, with each cluster exhibiting a different pattern. Cluster 3 seemed to be engaging in the most maladaptive pattern, with increasing spanking and low verbal engagement over time. This group may be in need of the most parenting assistance.

The analyses of stressors also indicate that mothers in Cluster 3 may be in need of parenting support. When all stressors were considered simultaneously, the most discriminating were high child emotionality, low household income, and high parenting stress. Cluster 3 had the highest proportion of mothers reporting high child emotionality, low household income, and high parenting stress, and exhibited the least adaptive pattern of parenting. Its possible that the burden of these stressors taxed the mothers' desire or ability to

engage in more adaptive parenting behaviors. Research on information processing has shown that stressors can lead parents to misperceive their child's behavior and overreact with harsh forms of parenting (for a review see Azar & Weinzierl, 2005). In addition, mothers experiencing these stressors may have less desire to engage in more appropriate parenting, which generally takes more effort, because they have devoted so much of their energy to coping with the other stressors in their lives. The cluster to go against this idea though, is Cluster 2, which displayed a more adaptive parenting pattern than Cluster 1, but experienced more stress. Perhaps the mothers in Cluster 2 had resources and supports to buffer the effects of the stressors, however, this study is unable to shed light on this issue.

Interestingly, the other stressors did not discriminate between the clusters. None of the following stressors discriminated between the clusters: (1) mother had considered an abortion (a potential indicator of the wantedness or planned nature of the child), (2) mother was depressed, (3) mother had used alcohol or other substances during the pregnancy, (4) mother had other children at the time of the focal child's birth, and (5) family lived in an unsafe neighborhood. As another way to understand the reasons for the groups' differences in parenting, I also conducted a post-hoc test to investigate whether maternal age could discriminate between the clusters. The ANOVA found no significant differences in age between the clusters ( $F[2, 766] = 1.65, p = 0.193$ ). It is possible that other factors, such as parental beliefs in corporal punishment or beliefs about appropriate parenting practices, would be better discriminators. Research has shown that beliefs about parenting are related to actual parenting behaviors (e.g., Dix, 1993; Luster et al., 1989).

Surprisingly, the cumulative stress index did not significantly differentiate between the groups. A likely explanation for this finding is that some indicators that comprise the

cumulative stress index did not have a robust association with the study outcomes. For example, maternal depression, ATOD use, high number of children, and unsafe neighborhood did not have significant zero-order correlations with spanking frequency at different time points. Similarly, maternal depression, ATOD use, high number of children, household poverty, and unsafe neighborhood did not have significant zero-order correlations with positive verbal engagement at different time points. Another partial explanation for this finding is that the cumulative stress index assigned zeros to items that had missing values for each mother and therefore underestimated cumulative stress for sample members with missing data. A post-hoc chi-square test revealed that mothers in Cluster 2 were more likely than mothers in Clusters 1 or 3 to have missing data on any of the stressors ( $\chi^2 = 8.93$ ,  $df = 2$ ,  $p = 0.011$ ). As a result, more mothers in Cluster 2 would have had lower cumulative stress scores than in the other clusters (due to assigning zeros to missing values), and this may have masked true differences between the clusters on the cumulative stress index.

### **Limitations**

The study results should be interpreted in light of several limitations. First, mothers served as the only informants for the parenting outcomes. As a result, study measures are subject to reporting and mono-method biases. Second, results may not generalize to adolescent mothers who come from more affluent backgrounds due to the disadvantaged nature of the FFCW sample. Likewise, results of the joint longitudinal cluster analysis may be sample specific and not generalizable to other samples of adolescent mothers. Finally, there are two parenting construct issues to improve in future studies. In the current study, maladaptive parenting was measured solely by spanking, yet mothers who reported infrequently spanking their child may use other forms of maladaptive discipline practices that

were not measured. Furthermore, spanking behavior was based on a single self-report item that asked mothers to report spanking behaviors in the past month, and mothers may have under-reported their behaviors due to social desirability bias. Adaptive parenting practices were measured by three items assessing the verbal engagement mothers had with their children on a weekly basis. These verbal parenting practices tended to be stable over time, but using a different measure of adaptive parenting practices, such as mothers' engagement with children in physical play, may yield different results.

### **Implications & Future Research**

This study makes an important contribution to the field by analyzing how adolescent mothers' parenting changes from infancy to early childhood, the heterogeneity in their parenting practices, and the joint-patterns of their adaptive and maladaptive parenting behaviors. Furthermore, this is the first study to link stressors to longitudinal patterns of parenting in a sample of adolescent mothers. The study demonstrates the heterogeneity in the parenting of adolescent mothers and the need for ways to identify the mothers most in need of support in order to best allocate scarce resources. The results also suggest that assessment tools and parenting programs may wish to focus on adolescent mothers' perception of their child's emotionality, their experience of parenting stress, and their income level as a means of identifying the mothers most in need of support. A focus on decreasing the impact of these stressors may lower the likelihood of less adaptive patterns of parenting. For example, home visiting programs like Nurse-Family Partnership and Early Start, that begin during pregnancy and provide support and education, have been shown to be effective in improving parenting and child outcomes (e.g., MacMillan, Wathen, Barlow, Fergusson, Leventhal, & Taussig, 2009; Mikton & Butchart, 2009). Furthermore, practitioners may best serve their adolescent

clients by conducting a comprehensive assessment of their parenting, risks, and resources. This will ensure that not all adolescent mothers are regarded as poor parents and that their strengths and resources are recognized and leveraged to benefit the mother and child.

Researchers may wish to take the next step by exploring how longitudinal trajectories of adolescent mothers' parenting may relate to child outcomes. Replication of the current findings with other samples of adolescent mothers would help validate the different subgroups of parenting trajectories. Future research may also seek to examine fathers' or independent observers' reports of parenting behaviors. The work could also be extended by exploring other types of parenting behaviors. Finally, identifying the strengths or sources of support of adolescent mothers may also prove to be an interesting line of inquiry that could result in knowledge to decrease the negative effect of stressors on parenting outcomes.



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Table 7  
*Descriptive Statistics*

Variable	Age at assessment	<i>N</i>	<i>M</i> ( <i>SD</i> ) or percent
<i>Outcomes</i>			
Spanking frequency	1	745	1.25(1.69)
Spanking frequency	3	733	1.87(1.70)
Spanking frequency	5	707	1.78(1.79)
Verbal engagement	1	745	4.57(1.82)
Verbal engagement	3	733	4.95(1.81)
Verbal engagement	5	707	4.62(1.68)
<i>Stressors</i>			
Difficult child temperament	1	741	31.85
Mother considered abortion	birth	764	31.02
Mother depressed	1	745	15.03
Mother used ATOD	birth	768	23.57
High parenting stress	1	640	25.47
High number of children	birth	769	30.03
Low household income	birth	769	43.69
Unsafe neighborhood	birth	769	18.21
<i>Cumulative Stress Index</i>			
Cumulative stress score		769	2.13(1.48)
3 or more stressors		769	35.37

*Note.* ATOD = Alcohol, tobacco, and other drugs.

Table 8

*Unstandardized Cluster Means for Spanking and Verbal Engagement over Time*

	Spanking Age 1	Spanking Age 3	Spanking Age 5	Verbal Engagement Age 1	Verbal Engagement Age 3	Verbal Engagement Age 5
Cluster 1	1.50	3.27	2.43	5.38	5.79	5.28
Cluster 2	0.48	0.08	0.72	5.22	5.72	5.11
Cluster 3	1.77	2.13	2.17	2.90	3.10	3.28

Table 9

*Description of Joint Longitudinal Parenting Clusters Using Stressors*

Stressors	Cluster 1	Cluster 2	Cluster 3
Difficult child temperament	29.17%	28.79%	38.14%
Mother considered abortion	34.58%	26.77%	34.02%
Mother depressed	15.00%	14.64%	15.46%
Mother used ATOD	26.67%	22.22%	21.13%
High parenting stress	20.83%	23.23%	34.02%
High number of children	31.25%	24.24%	27.32%
Low household income	37.91%	41.19%	50.00%
Unsafe neighborhood	15.83%	16.67%	18.56%
<i>n</i> =	240	198	194

*Note.* ATOD = alcohol, tobacco, or other drugs.

Table 10

*Canonical Discriminant Function Evaluated at Cluster Means*

Stressors	Structural Coefficients	Std. Canon. Coefficients
Difficult child temperament	0.440	0.343
Mother considered abortion	0.015	0.009
Mother depressed	-0.032	-0.005
Mother used ATOD	-0.270	-0.324
High parenting stress	0.672	0.613
High number of children	-0.160	-0.354
Low household income	0.534	0.532
Unsafe neighborhood	0.159	0.166

*Note.* ATOD = alcohol, tobacco, or other drugs; Std. Canon. = Standardized canonical.

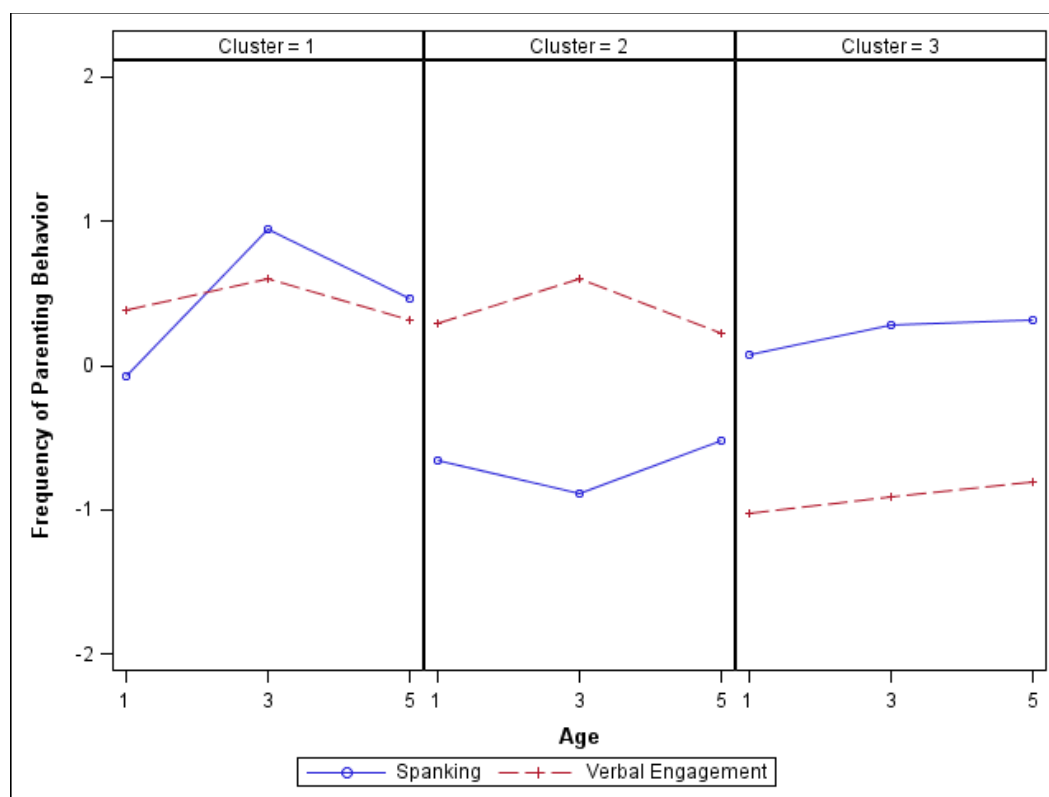


Figure 5. Standardized joint parenting trajectories for clusters of adolescent mothers.

## **CHAPTER 5**

### **Conclusion**

The purpose of this study was to investigate the person-in-context, temporality, plasticity, and diversity of teen childbearers' parenting behaviors in order to better understand: (a) whether teen childbearers are likely to engage consistently in poor parenting behaviors over time; (b) why they may or may not be likely to engage consistently in poor parenting behaviors over time; and (c) which teen childbearers may be most at risk.

In summary, the results from the three papers were mutually reinforcing, suggesting that teen childbearers are not likely to engage consistently in poor parenting behaviors over time. Paper 1 revealed a temporary relation between teen childbearing and aggressive discipline. Paper 2 demonstrated that teen and adult childbearers' aggressive discipline only differed in the early years of the child's life, and that discipline was similar between the groups at later child ages. This suggests that while teen childbearers may be at higher risk for maladaptive discipline early in their child's life, their parenting behaviors do appear to become more normative over time. Yet, Paper 3 highlighted the heterogeneity of teen childbearers' longitudinal parenting patterns, with some subgroups engaging consistently in potentially poorer parenting patterns over time while others seemed to be engaging in more adaptive patterns of parenting.

Furthermore, the results highlighted the importance of several factors related to mothers' engagement in less adaptive parenting behaviors. Paper 3 showed that mothers' perception of child temperament was related to how mothers parented their children. Children who were perceived to have difficult temperaments were more likely to be exposed to maladaptive patterns of parenting. The multivariate results from Paper 1 indicated that the existence of risk factors, such as low household income and neighborhood safety problems, might explain some of the variability in maladaptive parenting behaviors. The interactive

effect of these contextual risks and teen mothers' less realistic expectations of child behavior (e.g., Borkowski, Whitman, & Farris, 2007) and weaker executive functioning (e.g., Albert & Steinberg, 2011) may lead teen mothers to negative and maladaptive appraisals of their child's behavior. Negative appraisals have been linked to more power-assertive and aggressive forms of discipline (Azar et al., 1999; Barnes & Azar, 1990). Furthermore, researchers have found links between stress, information processing deficits, and poor parenting (see Azar & Weinzierl, 2005). Nevertheless, it is possible that teen childbearers' children are actually more temperamentally difficult, possibly due to exposure to some of the same environmental risks that are associated with early childbearing.

The results also demonstrated that teen *and* adult mothers who have poorer mental health, less satisfaction with social support, or have experienced domestic violence might be more likely to engage in aggressive discipline above and beyond the normal progression of discipline. Yet, Paper 2 suggested that domestic violence may be an especially salient stressor affecting the parenting behaviors of teen mothers. Paper 3 analyses also revealed that high levels of parenting stress and low levels of household income are factors important in determining the parenting patterns in which teen childbearers engage.

### **Teen Childbearers' Parenting Behaviors and Developmental Systems Theory**

Viewed through the lens of developmental systems theory, the results of this study provide insight about the temporality, plasticity, diversity, and person-in-context of teen childbearers' parenting behaviors. I discovered that teen childbearers' parenting changes as their children age, suggesting that the passage of time must be taken into account when thinking about how parents develop in their parenting practices. Findings from Paper 1 indicated that current-teen childbearers and prior-teen childbearers used different amounts of



aggressive discipline with their 3-year-old children, suggesting that the use of aggressive discipline may change as teen mothers develop. Results presented in Paper 2 suggested teen childbearers exhibited an increase in psychologically aggressive discipline over time. Moreover, Paper 3 revealed that the amount of spanking teen childbearers used over time changed for two of the three subgroups of mothers.

Connected with the idea of temporality is plasticity in teen childbearers' parenting behaviors. Plasticity consists of the idea that a person's behavior/development has the potential to change and that change within the person may vary across time. All of the results point to the relative plasticity of teen childbearers' parenting. Paper 1 showed that current-teen childbearers used discipline at a different frequency than never-teen childbearers, and found no differences between never-teen and prior-teen childbearers. This suggests that prior-teen childbearers may have changed their parenting behaviors from when they were teens, converging with the pattern of parenting exhibited by never-teen childbearers. Paper 2 also found that teen childbearers' discipline was relatively plastic as indicated by the overall rate of change in the models. Paper 3 also suggested that teen childbearers' spanking behaviors tend to change over time, whereas their levels of verbal engagement were somewhat more consistent.

In addition, the results indicate that teen childbearers' parenting behaviors are diverse. First, they are diverse in comparison to adult childbearers' parenting behaviors. Paper 1 showed that teen childbearers' aggressive discipline is significantly different from never-teen childbearers' aggressive discipline. Likewise, Paper 2 demonstrated differences between teen and adult childbearers' aggressive discipline when children are very young. Second, teen childbearers' parenting behaviors are diverse within the population of teen

childbearers. Some teen childbearers seem to engage in more adaptive patterns of parenting whereas others engage in riskier patterns, as demonstrated in Paper 3.

Finally, the papers demonstrate the need to consider the teen childbearer in context. Child temperament emerged as a significant factor related to teen childbearers' disciplinary practices. Child factors may be particularly salient for teen childbearers who tend to have less childrearing experience and knowledge and may be more likely to misperceive child behavior. In addition, high levels of parenting stress and low household income were important factors related to teen childbearers' parenting behaviors. Domestic violence, social support, and mental health were important factors related to aggressive discipline. All of these factors may impinge on the likelihood and frequency with which teen mothers engage in maladaptive or adaptive parenting behaviors.

### **Practice, Policy, & Research Implications**

Taken together, results from my research point to several practice and policy recommendations related to prevention and early intervention. Intervention programs, preferably those that occur prior to the child's birth and that extend through toddlerhood, might prevent the emergence of poor parenting behaviors and increase the likelihood of positive developmental outcomes for the child. In particular, my research suggests that interventions may be enhanced by focusing on: (a) teen mothers' perceptions of child behavior, (b) management and prevention of parenting stress, (c) increasing household income, and (d) decreasing domestic violence. A policy requiring all teen mothers to be screened in the hospital at the time of their child's birth would help to identify mothers for service delivery. The screening tool might assess knowledge of child development, childrearing experience, sources of income, potential stress related to parenting, amount of

social support, involvement in violent relationships, and mental health. Early screening and intervention are likely to benefit not just the mother and child, but society as well.

Prevention programs are likely to save taxpayer dollars. For example, Olds et al. (1997) found that the Nurse-Family Partnership resulted in nurse-visited-mothers reporting lower use of AFDC and food stamps, fewer numbers of arrests, and less child abuse and neglect, which would result in fewer costs to society. In addition, Karoly et al. (1998) conducted a cost-benefit analysis for the Nurse-Family Partnership and demonstrated that the program would save approximately \$18,000 per child.

Nevertheless, there are multiple research avenues that still need to be explored. First, it is important to home in on the risk factors and stressors that are particularly salient for teen childbearers, as they may differ from factors that have been identified as predictors of maladaptive parenting among adult childbearers. Identification of salient factors for teens, and an understanding of when the factors are most important, could improve the design of parenting interventions for the population. Second, replication of the results with other data or samples would be important for generalizing the results to a broader population of teen childbearers. The current results were based on data from mothers at high risk for child maltreatment; thus, they are less generalizable. Third, it would be interesting to extend the longitudinal analyses in Paper 2 to include later child ages. It is possible that when aggressive disciplinary behaviors become less normative (after child ages 5-6 years) teen childbearers will use a higher amount of aggressive discipline than adult childbearers, even though the two groups' disciplinary behaviors were similar for a previous period. Results from such an analysis may or may not align with results from Paper 1 that indicated a temporary relation between teen childbearing and aggressive discipline. Finally, an investigation of protective

factors in the lives of teen childbearers would be helpful for program and intervention planning because it may explain why some teen childbearers engage in more adaptive forms of parenting.

## References

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- Azar, S. T., & Weinzierl, K. M. (2005). Child maltreatment and childhood injury research: A cognitive behavioral approach. *Journal of Pediatric Psychology*, 30(7), 598-614.
- Barnes, K. T., & Azar, S. T. (1990, August). *Maternal expectations and attributions in discipline situations: A test of a cognitive model of parenting*. Paper presented at the annual meeting of the American Psychological Association, Boston, MA.
- Borkowski, J. G., Whitman, T. L., & Farris, J. R. (2007). Adolescent mothers and their children: Risks, resilience, and development. In J. G. Borkowski, J. R. Farris, T. L. Whitman, S. S. Carothers, K. Weed & D. A. Keogh (Eds.), *Risk and resilience: Adolescent mothers and their children grow up* (pp. 1-34). Mahwah, NJ: Lawrence Erlbaum.
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on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *JAMA*, 278(8), 637-643.

## CURRICULUM VITAE

**Andrea N. Gromoske****EDUCATION**

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- Expected Dec 2013      PhD Candidate, University of Wisconsin-Milwaukee, Helen Bader School of Social Welfare  
*Dissertation Title:* A Developmental Systems Approach to Exploring the Plasticity and Diversity of Teen Childbearers' Parenting Behaviors  
*Dissertation Committee:* Joshua P. Mersky (chair), Dimitri Topitzes, Lonnie Berger, Michael Brondino, Paul Florsheim
- 2008                      MSW, University of Wisconsin-Milwaukee, Helen Bader School of Social Welfare  
*Concentration:* Children and Families
- 2004                      BA, University of Wisconsin-Madison, College of Letters and Science  
*Major:* Psychology

**PROFESSIONAL AND RESEARCH APPOINTMENTS**

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- 2013-present      **Epidemiologist and Evaluator**, Wisconsin Department of Health Services, Division of Public Health, Bureau of Community Health Promotion, Family Health Section, Madison, WI.
- 2012                      **Assistant Researcher**, UW-Milwaukee – Milwaukee Child Welfare Partnership for Professional Development.
- 2011-present      **Principal Investigator**, "The Effectiveness of an Evidence-based Practice Continuing Education Workshop for Social Workers." UW-Milwaukee – Helen Bader School of Social Welfare. Co-investigator: Lisa K. Berger, PhD.
- 2010-2011          **Research Assistant**, UW-Milwaukee – Helen Bader School of Social Welfare, under Joshua Mersky, PhD.
- 2010                      **Research Assistant**, UW-Milwaukee – Helen Bader School of Social Welfare, under Susan Rose, PhD and Thomas LeBel, PhD.
- 2009                      **Research Assistant**, UW-Madison – Institute for Research on Poverty, under Lonnie Berger, PhD and Kristen Slack, PhD.
- 2007-2008          **Project Assistant**, UW-Milwaukee – Helen Bader School of Social Welfare, under Lisa Berger, PhD.

2007                    **Project Assistant**, UW-Milwaukee – Helen Bader School of Social Welfare,  
under Joshua Mersky, PhD.

## **PUBLICATIONS**

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### **Refereed Journal Articles**

**Gromoske, A. N.**, & Maguire-Jack, K. (2012). Transactional and cascading effects of early spanking on children's social-emotional development. *Journal of Marriage and Family*, 74, 1054-1068. doi: 10.1111/j.1741-3737.2012.01013.x

Maguire-Jack, K., **Gromoske, A. N.**, & Berger, L. M. (2012). Spanking and child development during the first five years of life. *Child Development*, 83(6), 1960-1977. doi: 10.1111/j.1467-8624.2012.01820.x

**Gromoske, A. N.**, Oldridge, N., & Brondino, M. J. (2011). Readability of 3 heart disease health-related quality of life questionnaires. *Journal of Cardiopulmonary Rehabilitation and Prevention*, 31(4), 245-248.

Berger, L. K, Otto-Salaj, L. L., Stoffel, V. C., Hernandez-Meier, J., & **Gromoske, A. N.** (2009). Barriers and facilitators of transferring research to practice: An exploratory case study of Motivational Interviewing. *Journal of Social Work Practice in the Addictions*, 9(2), 145-162.

Mersky, J. P., Berger, L. M., Reynolds, A. J., & **Gromoske, A. N.** (2009). Risk factors for child and adolescent maltreatment: A longitudinal investigation of a cohort of inner-city youth. *Child Maltreatment*, 14(1), 73-88.

### **Manuscripts in Preparation or Under Review**

Holmes, M. R., Voith, L. A., & **Gromoske, A. N.** (under review). Lasting effect of intimate partner violence exposure during preschool: Cross-lagged analyses of aggressive behavior and prosocial skills.

Voith, L. A., **Gromoske, A. N.**, & Holmes, M. R. (under review). Effects of cumulative violence exposure on children' trauma and depression symptoms: An ecological examination using fixed effects regression.

**Gromoske, A. N.** Differences in longitudinal discipline trajectories between teen and adult childbearers.

**Gromoske, A. N.** Joint longitudinal patterns of responsive and demanding parenting behaviors in a sample of adolescent mothers.



## AWARDS & FELLOWSHIPS

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- 2011-present Quality Improvement Center on Early Childhood Doctoral Dissertation Research Fellowship, Quality Improvement Center on Early Childhood. \$50,000
- 2011 Student Paper Competition Award, National Research Conference on Child and Family Programs and Policy for the paper titled, "Spanking and Child Development during the First Five Years of Life." July 2011. \$200
- 2011 Graduate Student Travel Award, University of Wisconsin-Milwaukee Graduate School, to present at the Society for Research in Child Development Biennial Meeting in Montreal, Quebec, Canada, March 31-April 2, 2011. \$500
- 2011 Center for Research on Families Methodological Studies Grant, Center for Research on Families, University of Massachusetts-Amherst to attend methodological class on analyzing developmental trajectories. \$3,100
- 2011 Student Social Work Association Travel Award, University of Wisconsin-Milwaukee. \$350
- 2010 National Data Archive on Child Abuse and Neglect – Summer Research Institute Attendee. National Data Archive on Child Abuse and Neglect, Cornell University, June 14<sup>th</sup>-18<sup>th</sup>, 2010.
- 2008-2009 Dean's Fellowship, Helen Bader School of Social Welfare, University of Wisconsin-Milwaukee. \$20,000

## REFEREED PRESENTATIONS

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- Bartlett, J. D., Gromoske, A. N., Maguire-Jack, K., & Nygren, P. (May, 2014). From risk to multiple levels of protection: Connecting the dots from research on child maltreatment to prevention, policy, and practice. Panel to be presented at the National Conference on Child Abuse and Neglect, New Orleans, LA.
- Voith, L. A., **Gromoske, A. N.**, & Holmes, M. R. (2014, January). An ecological examination of cumulative violence exposure on children's trauma and depression symptoms. Paper to be presented at the meeting for the Society for Social Work and Research, San Antonio, TX.
- Holmes, M. R., Voith, L. A., & **Gromoske, A. N.** (2014, January). Lasting effect of intimate partner violence exposure during preschool: Cross-lagged analyses of aggressive behavior and prosocial skills. Paper to be presented at the meeting for the Society for Social Work and Research, San Antonio, TX.

- Gromoske, A. N.** (2013, January). Parenting trajectories of early childbearers and associated factors. Paper presented at the meeting for the Society for Social Work and Research, San Diego, CA.
- Gromoske, A. N.,** Berger, L. K., & Parrish, D. (2013, January). Replication of a model for continuing education training in evidence-based practice. Poster presented at the meeting for the Society for Social Work and Research, San Diego, CA.
- Gromoske, A. N., & Janczewski, C.** (2011, October). Beginning the program improvement process: A strength-based approach. Workshop at the 37<sup>th</sup> annual National Association of Social Workers-Wisconsin Chapter State Conference, Madison, WI.
- Janczewski, C., & **Gromoske, A. N.** (2011, August). Long-term foster care: Exploring child, population, and agency predictors. Poster presented at the National Child Welfare Evaluation Summit, Washington, D.C.
- Gromoske, A. N.,** Maguire-Jack, K., & Berger, L. M. (2011, July). Spanking and child development during the first five years of life. Paper presented at the Fourth National Research Conference on Child and Family Programs and Policy, Bridgewater State University, MA.
- Gromoske, A. N., & Maguire-Jack, K.** (2011, April). Transactional and cascading effects of early spanking on child socio-emotional development. Poster presented at the meeting of the Society for Research in Child Development, Montreal, Quebec, Canada.
- Gromoske, A. N., & Mersky, J. P.** (2011, January). Changes in disciplinary practices during middle childhood: Differences between early and delayed childbearers. Poster presented at the meeting of the Society for Social Work and Research, Tampa, FL.
- Maguire-Jack, K.,\* **Gromoske, A. N.,\*** & Berger, L. M. (2011, January). Spanking and child outcomes. Paper presented at the meeting of the Society for Social Work and Research, Tampa, FL. \*Co-presented.
- Gromoske, A. N.,** Janczewski, C. J., & Hernandez-Meier, J. (2010, October). Empowering clients through evidence-based practice: An informed and shared decision-making framework. Workshop at the 36<sup>th</sup> Annual National Association of Social Workers-Wisconsin Chapter State Conference, Milwaukee, WI.
- Gromoske, A. N.,** Hernandez-Meier, J., Berger, L. K., & Topitzes, J. (2009, October). Evidence based practice: Strategies for finding answers now! Workshop at the 35<sup>th</sup> Annual National Association of Social Workers-Wisconsin Chapter State Conference, Madison, WI.
- Hernandez-Meier, J., **Gromoske, A. N.,** Berger, L. K., Otto-Salaj, L., & Stoffel, V. (2008, May). Transferring social work research into practice: Real world strategies.

Presentation at the 34<sup>th</sup> Annual National Association of Social Workers-Wisconsin Chapter State Conference, Madison, WI.

### TEACHING EXPERIENCE

---

- Fall 2012      **Adjunct Instructor**, Methods of Social Welfare Research, UW-Milwaukee. Developed syllabus, assessments, Desire2Learn class website, and in-class learning modules.
- Spring 2011   **Co-instructor**, Methods of Social Welfare Research, UW-Milwaukee. Co-taught with Dr. Michael Brondino. Co-developed syllabus and class assessments.
- Fall 2011      **Teaching Assistant**, Methods of Social Welfare Research, UW-Milwaukee.
- Spring 2010   **Guest Lecturer**, “Path Analysis” for Applied Multiple Regression Analysis (Doctoral-level class), UW-Milwaukee.
- Fall 2010      **Teaching Assistant**, Methods of Social Welfare Research, UW-Milwaukee.
- Fall 2009      **Teaching Assistant**, Methods of Social Welfare Research, UW-Milwaukee.

### CLINICAL EXPERIENCE

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- 2007-2008      School Social Worker – MSW Intern, Wauwatosa School District, Wauwatosa, WI.
- 2007            Social Work Counselor – MSW Intern, The Youth and Family Project, Inc., West Bend, WI.
- 2006-2008      Autism Therapist, Private Family, Mequon, WI.
- 2005-2006      Lead Program Coordinator, Community Living Connections, Inc., Madison, WI.

### SERVICE

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- 2012-present   Member of the Student Editorial Board, *Child Maltreatment*, the journal of the American Professional Society on the Abuse of Children (APSAC).
- Spring 2011      Social Work Doctoral Program Admissions Committee Member, UW-Milwaukee – Helen Bader School of Social Welfare.
- 2009-2012      Social Work Doctoral Student Recruitment Committee Member, UW-Milwaukee – Helen Bader School of Social Welfare.