

## AN ABSTRACT OF THE THESIS OF

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Title: The Effect of Head Start on Teacher-Child Relationships: Mechanisms and Moderation by Children's Problem Behavior

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Positive teacher-child relationships, characterized by warmth and closeness, are associated with better behavioral and academic outcomes for children in preschool and elementary school (Hamre & Pianta, 2005). Supporting teachers to establish these positive relationships with children is important in all early care and education (ECE) programs. Head Start programs, designed to address the needs of the whole child, including healthy relationships with teachers, may be particularly effective in facilitating positive teacher-child relationships (Zigler & Styfco, 2010). The current study examined the role of Head Start in supporting teachers in establishing more positive and less conflictual relationships with children, including potential mechanisms of influence, and moderation by children's levels of problem behaviors. Both positive (closeness) and negative (conflict) dimensions of teacher-child relationships were examined. The study utilized data from the Head Start Impact Study, a nationally representative randomized control trial of 4,442 Head Start-eligible children and families assigned to either Head Start (n= 2,783) or a community control group (n= 1,884; U.S. DHHS, 2010a). First, an overall structural equation

path model was used to test hypotheses one and two and second, a multiple group path analysis was used to test hypothesis three. We focused on children with behavioral problems because results revealed a direct effect of Head Start on lower teacher-child conflict, but only for children with problem behaviors. No direct effect of Head Start on teacher-child closeness was detected. Indirect effects of Head Start on teacher-child relationships mediated through teacher supports and mentoring were only found for children without problem behaviors. Findings from the current study suggest a greater need for professional development efforts, specifically providing strategies effective in managing children with problem behaviors.

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The Effect of Head Start on Teacher-Child Relationships:  
Mechanisms and Moderation by Children's Problem Behavior

by  
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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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Alexis Tracy, Author

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Mechanisms and Moderation by Children's Problem Behaviors

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## Abstract

Positive teacher-child relationships, characterized by warmth and closeness, are associated with better behavioral and academic outcomes for children in preschool and elementary school (Hamre & Pianta, 2005). Supporting teachers to establish these positive relationships with children is important in all early care and education (ECE) programs. Head Start programs, designed to address the needs of the whole child, including healthy relationships with teachers, may be particularly effective in facilitating positive teacher-child relationships (Zigler & Styfco, 2010). The current study examined the role of Head Start in supporting teachers in establishing more positive and less conflictual relationships with children, including potential mechanisms of influence, and moderation by children's levels of problem behaviors. The study utilized data from the Head Start Impact Study, a nationally representative randomized control trial of 4,442 Head Start-eligible children and families assigned to either Head Start ( $n= 2,783$ ) or a community control group ( $n= 1,884$ ; U.S. DHHS, 2010a). No significant direct effect of Head Start on teacher-child closeness was detected. Indirect effects of Head Start on teacher-child relationships mediated through teacher supports and mentoring were only found for children without problem behaviors. Findings from the current study suggest a greater need for professional development efforts, specifically providing strategies effective in managing children with problem behaviors.

### **Effect of Head Start on Teacher-Child Relationships: Mechanisms and Moderation by Children's Problem Behaviors**

Positive teacher-child relationships, characterized by warmth and closeness, are associated with better behavioral and academic outcomes for children in preschool and elementary school (Hamre & Pianta, 2005). Teacher-child relationships are influenced by characteristics of teachers (Gilliam & Shahar, 2006; Howes, 1997), programs (Howes, 2000; Pianta et al., 2005), and children (Mashburn, Hamre, Downer, Pianta, 2002; Rudasil & Rimm-Kaufman, 2009). Research suggests that children with problem behaviors may be those most in need of positive teacher-child relationships in order to successfully manage classroom demands (Birch & Ladd, 1998; Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008). Problem behaviors, such as hitting, yelling, and being disruptive in class, can interfere with school adjustment, especially during the transition to kindergarten (Rimm-Kaufman, Pianta, Cox, 2000). Behavior problems also put children at risk of having poor self-regulation (McClelland, Morrison, & Holmes, 2000), more negative social interactions (Howes, 2000), and lower academic achievement (Hamre & Pianta, 2001). Positive teacher-child relationships can act as a buffer during the transition to formal school to prevent the escalation of these behaviors (Berry & O'Connor, 2010; Hamre & Pianta, 2001).

The current study examined the Head Start program as a means of promoting more positive teacher-child relationships for preschool-aged children, specifically for children with elevated levels of problem behaviors. In addition, the proposed study examined two teacher resources, having someone to turn to for developmental advice/guidance and mentoring/coaching as potential mechanisms by which Head Start may contribute to positive teacher-child relationships.

### **The Importance of Intervening Early**

Early onset problem behaviors can increase the risk of long term consequences, including more deviant behavior in middle childhood, adolescence, and young adulthood (Dishion & Tipsord, 2011). A large body of evidence suggests the preschool period (ages 3-5) is a critical time to address problem behaviors that can potentially hinder a successful transition to formal schooling (Webster-Stratton, 2006). Establishing positive teacher-child relationships during the preschool period may be an important means of protecting against potential consequences of problem behaviors. However, children with problem behaviors are among those least likely to establish healthy relationships with their teachers (Birch & Ladd, 1998; McCoy & Raver, 2011). For example, Eisenhower, Baker, and Blacher (2007) found that children exhibiting problem behaviors had difficulty with the formation of positive teacher-child relationships. Early childhood education programs (ECE programs) targeting multiple domains (teachers, parents, nutrition, etc.), such as Head Start, may help to promote these relationships, especially for children with problem behaviors. The present study examined both the effect of Head Start on children's relationships with their teachers and also the mechanisms by which Head Start programs support teachers to better establish relationships with children, particularly with those exhibiting problem behaviors.

### **Head Start**

Head Start was designed to address the needs of the whole child, including healthy relationships with teachers, in order to promote successful development. The Head Start model aims to close the achievement gap between children in poverty and their more advantaged peers by using a holistic approach, addressing children and their needs at multiple levels (teachers, families, children, etc.; Zigler & Styfco, 2010). Given this comprehensive approach, Head Start

teachers are more likely to have the necessary resources to establish more positive and less conflictual relationships with children, specifically children with problem behaviors. An initial indication of this is the lower rates of preschool expulsion seen in Head Start classrooms compared to other early learning programs (Gilliam and Shaher, 2006).

Previous analysis of data from the Head Start Impact Study (HSIS) has shown mixed results related to changes in teacher-child relationships. For example one report revealed that Head Start had a positive impact on teacher-child interactions (Administration for Children and Families, Office of Planning, Research, and Evaluation [ACF, OPRE] 2005). However, a more recent analysis of the HSIS data indicated that at the end of the 1<sup>st</sup> grade year, the four-year-old cohort had more problematic relationships with teachers and no significant changes in relationships were seen for the three-year-old cohort. Given the variability in Head Start implementation, it may be important to look more deeply at potential mechanisms within Head Start, as well as the effectiveness of these mechanisms for different groups of children. The present study may provide additional evidence regarding the effect of Head Start on teacher-child relationships for all children, and specifically for those with elevated levels of problem behaviors.

Despite mixed findings, participating in Head Start, with its accompanying services like professional development for teachers, may be more important for children with problem behaviors in minimizing the risk of future negative consequences. The current study examined the overall impact of Head Start as well as two specific ways of providing resources to teachers: having someone to turn to for advice/help and mentoring. These resources may promote more positive and less conflictual teacher-child relationships, especially for children who have problem behaviors.

### **Teacher Supports and Mentoring**

**Teacher Supports.** One way in which Head Start may help teachers to establish healthy relationships with children, especially those with problem behaviors, is by providing someone whom teachers can turn to with questions or concerns about children's development and behavior. For example, several Head Start centers have incorporated mental health consultation (MHC). Mental health consultation can take one of two approaches: program or child centered, however, both provides teachers with someone to turn to when they have questions about children's development. In child-centered MHC, the consultant provides skill building, and often one-on-one training, to children displaying concerning behavior (Green, Everhart, Gordon, & Gettman, 2006). Program-centered MHC is focused more broadly on the teacher(s) and the childcare environment. It aims to increase teachers' capacity to effectively manage children's problem behaviors and cope with their own stresses using daily strategies to prevent and reduce conflicts (Brennan Bradley, Allen, Perry, 2008).

Head Start and other ECE programs may also provide teachers with support through services other than MHC, such as community partnerships gained through serving at risk populations, or Early Intervention (EI) services received by children. Head Start programs are required to provide children with developmental screenings and other health and social services, allowing teachers to use these professionals as resources to better understand and meet the needs of their students (Nelson et al., 2013).

These types of teacher supports may provide necessary help or guidance to teachers in forming positive relationships with children. These resources may be especially important in establishing relationships with children with problem behaviors, given that these children often have the most difficulty in forming healthy relationships with teachers. In addition, having

outside support for classroom management and individual child behaviors may help to decrease the stress levels of teachers, allowing for more positive teacher-child relationships. Research suggests the high turnover rates of preschool teachers often result from having little outside support and elevated stress levels (Gilliam & Shahar, 2006; Yost & Mosca, 2002). This may prevent the formation of stable relationships between teacher and child. Thus, offering supports to teachers in early childhood education programs, like Head Start, may help to alleviate stress and promote healthy teacher-child relationships with all children, and especially with those exhibiting problem behaviors.

**Teacher Mentoring.** Mentoring is another potential mechanism through which Head Start programs may promote more positive and less conflictual teacher-child relationships. Mentoring, also known as coaching, can be defined as collaboration between an experienced or more knowledgeable person (mentor) and mentee, where the mentee is provided with support and guidance in their teaching efforts (McCormick & Brennan, 2001). A mentor often provides guidance to teachers with concerns about specific children's behaviors or general classroom management strategies. This may be important given that mentoring has been linked with teachers' professional development, classroom quality, and teacher-child interactions (Gallagher, Abbott-Shim, VandeWiele, 2011). Mentoring is emerging as a promising professional development strategy to improve teachers' interactions and relationships with children (Landry Anthony, Swank, Monseque-Bailey, 2009; Pianta, Mashburn, Downer, Hamre, & Justice, 2008). For example, teachers receiving a comprehensive mentoring approach improved their overall teaching practices of at-risk children by keeping comprehensive portfolios of children and implementing more effective teaching strategies, thus allowing for better teacher-child relationships (Landry et al., 2009).

Mentoring can be delivered through a variety of models, such as mental health consultation (MHC), internal efforts where a more seasoned teacher is paired with those less experienced in the classroom (Brennan et al., 2008), or other professional development programs. For example, the Head Start REDI (Research-based Developmentally Informed) intervention project incorporates a professional development component that includes mentoring, called REDI PD. This model provides formal workshops and coaching where a coach performs weekly classroom visits, models appropriate behavior, provides technical assistance, and immediate consultation (Nix et al., 2013). A more structured professional development approach is My Teaching Partner (MTP), a web-mediated professional development program where teachers video their classroom instruction and receive targeted feedback from a coach. This program has been found to have a positive influence on the formation of teacher-child relationships. For example, in a sample of at-risk four year olds, Downer and colleagues found that teachers enrolled in MTP had more positive teacher-child relationships compared to teachers who were not (Downer, Kraft-Sayre, & Pianta, 2009).

The Chicago School Readiness Project (CSRP), a randomized control trial of 18 Head Start programs, implemented the use of a mental health consultant in their intervention to improve teachers' emotionally supportive classroom practices. Teachers in the intervention attended behavior management trainings and were provided with a mental health consultant who coached them once a week on implementing their behavior management strategies (Raver et al., 2008). As a result, teachers in the intervention group had more positive classroom climates, demonstrated more positive and proactive behavior management strategies, and were more responsive to their students' needs compared to teachers in the control.

One potential benefit to implementing mentoring, particularly for preschool teachers, is its ability to tailor to individual teacher-child relationships in addition to meeting larger classroom demands. In addition, a mentor can provide one-on-one consultation to develop targeted strategies and techniques in managing and suppressing children's behaviors, allowing teachers to more effectively form positive teacher-child relationships. Therefore, mentoring may be particularly useful to preschool teachers in their efforts to form healthy relationships with children exhibiting problem behaviors (Green, et al., 2006; Landry, 2009).

While mentor/coaching programs have a variety of aims (e.g. curricula, quality improvement, etc.), the teacher-child relationship is central in effectively implementing them. It is expected then, that mentoring will act as a mechanism linking Head Start programs with more positive and less conflictual teacher-child relationships.

### **Complex Relations among Head Start, Teacher Supports, and Teacher-Child Relationships**

**Indirect Relations between Head Start and Teacher-Child Relationships.** In summary, the current study examined the extent to which the relationship between Head Start and teacher-child relationships is mediated through provision of teacher supports and mentoring. As previously discussed, ample evidence suggests that professional development programs targeting teachers of at-risk children find an increase in positive teacher-child relationships from having a mentor or immediate resources in managing classroom routines and behaviors (Downer et al., 2009; Pianta et al., 2003). These findings suggest the potential of a mediated relationship between Head Start and teacher-child relationships through mentoring and teacher supports.

**Children's Behavior as a Moderator.** It is well established that children with problem behaviors are at risk for negative developmental trajectories and frequently have less positive teacher-child relationships. Research has found that children most at-risk for negative

developmental trajectories often benefit more from quality ECE experiences than their more advantaged peers (Bierman, Nix, & Makin-Byrd, 2008; Magnuson, Meyers, Ruhm, & Waldfogel, 2004). It is also likely that positive teacher-child relationships may be more important for children with problem behaviors compared to those without. Based on previous evidence that children with problem behaviors tend to benefit most from programs targeting teachers (Filcheck, McNeil, Greco, & Bernard, 2004; Hamre & Pianta, 2001). It is expected that the direct and indirect effect of Head Start on teacher-child relationships will be stronger for children with problem behaviors. The proposed study examined children's problem behavior as a potential moderator of the direct and indirect effects of Head Start on teacher-child relationships.

### **Current Study**

The current study examined the role of Head Start in supporting teachers in establishing more positive and less conflictual relationships with children, including potential mechanisms of influence, and moderation by children's levels of problem behaviors. Three research questions were investigated.

*1. Does Head Start have a positive impact on teacher-child relationships?*

It was hypothesized that Head Start will have a positive impact on teacher-child relationships, including both more closeness and less conflict.

*2. Do teacher supports and mentoring mediate the relationship between Head Start and teacher-child relationships?*

The effects of Head Start on teacher-child relationships is expected to be mediated through having someone to turn to with questions about children, and the amount of mentoring teachers receive. Both positive (closeness) and negative (conflict) dimensions of teacher-child relationships were examined.

3. *Are the direct and mediated effects of Head Start on the teacher-child relationship stronger for children with problem behaviors?*

The direct effects of Head Start on closeness and conflict in teacher-child relationships are expected to be stronger for children with problem behaviors. In addition, the indirect effect, mediated through supports and mentoring are expected to be stronger for children with problem behaviors compared to those without.

## **Method**

### **Participants**

The current study utilized data from the Head Start Impact Study, a nationally representative randomized control trial of 4,442 Head Start-eligible children and families assigned to either Head Start ( $n= 2,783$ ) or a community control group ( $n= 1,884$ ; U.S. DHHS, 2010a). Data from the three and four-year-old cohort was combined. Three-year-old children not enrolled in Head Start at baseline could enroll the following year. Only children enrolled in Head Start, early childhood classroom, or family/non-relative childcare settings ( $n= 2731$ ) were included for the purposes of the current study. This included children assigned to Head Start ( $n= 2098$ ) and control ( $n= 633$ ) conditions. The sample was 49% female, and average child age was 49 months ( $SD= 6.82$ ). Roughly 68% of the sample was of minority status (non-white) and 33% of mothers had less than a high school degree. Teachers in the Head Start group had a mean age of 37 years ( $SD= 1.8$ ) and were 98% female. Teachers in the control had a mean age of 37 years ( $SD= 2.23$ ) and were 97% female.

### **Procedures**

The present study examined data collected at baseline (fall 2002), and at the end of the Head Start year (spring 2003). Parents reported on child behavior and demographics in the fall

of 2002 and teachers completed surveys regarding their relationships with children in the spring of 2003. Data were collected similarly between the Head Start and community control group.

### Measures

**Problem Behavior.** Parents rated children's problem behaviors at baseline in fall 2002. Scores were obtained using a modified version of the Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991), which was developed for the Head Start Family and Child Experiences Survey (FACES). Caregivers were asked to rate the child on 14 items including aggressive or defiant behavior and inattentive or hyperactive behavior such as "Is disobedient at home" or "Is very restless and fidgets a lot." Each item is rated from 0-2 with the total scale score ranging from 0 (all items marked *not true*) to 28 (all items marked *very true*). This measure has demonstrated strong reliability in the Head Start Impact Study (Chronbach's  $\alpha = .82-.87$ ; U.S. DHHS, 2006). A grouping variable was created in which children who had a score of more than one standard deviation above the mean were classified as exhibiting elevated levels of problem behavior ( $n = 445$ ; 37.75% female) and coded as 1; all other children were coded as 0.

**Teacher-child relationship.** The teacher-child relationship was assessed in the spring of 2003 using the closeness and conflict scales from the Student Teacher Relationship Scale (short form; Pianta, 2001). Teachers were asked to rate each child on 15 items; such as "If upset, this child will seek comfort from me" or "This child easily becomes angry at me". Additional items include "I share an affectionate, warm relationship with this child" or "The child openly shares his/her feelings and experiences with me." Teacher ratings of each item were based on a five-point response format ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*). The closeness scale has seven items and scores range from 7 to 35; the conflict scale has eight items

and scores range from 7 to 38. This scale has shown to be reliable in previous analyses of the full sample from the Head Start Impact Study (Chronbach's  $\alpha = .62 - .65$ ; U.S. DHHS, 2010a).

**Supports.** The extent to which teachers had supports available to help them address concerns about children was measured using a five-item question from the teacher survey collected in spring of 2003. Teachers were asked, "Do you have someone you can turn to who can help you if you have concerns about children's..." Responses were coded as 0 = no and 1 = yes for the following items: mental health, nutrition, behavior, development, and general health. Responses were then aggregated into a total score, which ranged from 0 to 5, with good internal consistency (Chronbach  $\alpha = .84$ ).

**Mentoring.** Mentoring was measured using two questions from the teacher survey collected in spring of 2003. The first question asked, "Some people who care for children have another adult—sometimes called a mentor—who observes them on a regular basis and provides feedback, guidance, and training caring for children. Since September, has someone mentored you?" Teachers responded either "yes" or "no". The second question asked, "How often does your mentor come to your classroom?" Response options included 1 (*at least once a week*), 2 (*once every two weeks*), 3 (*once a month*), 4 (*less than once a month*), and 5 (*for a concentrated period -such as an entire month- at least once a year*). Teachers who responded "no" to the first question were scored as 0 and those that responded "yes" were scored based on their response to the second question; total range of scores is 0 - 5.

**Head Start.** The Head Start variable was coded as 1 (assigned to Head Start) and 0 (assigned to control group).

**Covariates.** The following covariates were chosen because each has been shown to be associated with children's problem behaviors and/or teacher-child relationships (Hughes &

Kwok, 2007; Pianta & Stuhlman, 2004; Silver, Measselle, Armstrong, and Essex, 2005). Child covariates included child gender (0= male, 1= female), age in months ( $M=49$ ), race (0= white, 1= non-white), and mother's education level (0= less than high school, 1= high school diploma or GED, 2= high school or above). Teacher covariates included teacher sex (0= male, 1= female) and age in years ( $M=37.0$  years).

## Results

### Analytic Strategy

Data analyses were conducted using Stata 13.0 (Stata Corp, 2013), and to account for missing data, maximum likelihood with missing values (MLMV) was used. An overall structural equation path model was used to test hypotheses one and two, which predicted direct and indirect effects of Head Start on the teacher-child relationship for the entire sample, mediated through mentoring and teacher supports. To address the potential indirect effects of Head Start on teacher-child relationships, the Monte Carlo method was used (Selig & Preacher, 2008). This method is useful given that it constructs confidence intervals for the indirect effects in a given model where standardized coefficients and standard errors are computed (MacKinnon, Lockwood, & Williams, 2004).

A multiple group path analysis was used to test hypothesis three, that the direct and indirect effects of Head Start on teacher-child relationships would be stronger for children with problem behaviors. A multiple group approach is advantageous because it allows for testing whether the entire model, or pattern of associations among the variables (see Figure 1) differs across the two groups of children, or if some of the paths can be constrained to be equivalent for the two groups (Acock, 2013; Muthén & Muthén, 1998-2006). A model in which all paths are allowed to differ for children with and without problem behaviors was compared to a model in

which all paths are constrained to be equal across groups, as well as to a model in which only paths that are significantly different across groups are allowed to vary. The unconstrained and constrained models were compared using a chi square test and comparing model fit indices (Asparouhov & Muthén, 2006).

### **Preliminary Results**

Table 1 shows descriptive statistics for all study variables. There was a larger percentage of boys and children of minority status in the group with problem behaviors, compared to the group without problem behaviors. After controlling for child gender and minority status, covariates did not vary across groups. Children with problem behaviors had, on average, significantly lower levels of teacher closeness ( $t(2242) = 4.12, p = 0.00$ ) and higher levels of teacher conflict ( $t(2234) = -5.78, p = 0.00$ ), compared to children without problem behaviors.

Table 2 presents zero-order correlations among variables of interest (Head Start, mentoring, teacher supports, and teacher-child conflict and closeness) for children with and without problem behaviors. Head Start was positively associated with teacher supports for children both with and without problem behaviors but was only linked with mentoring for children without problem behaviors. In turn, teacher supports were negatively correlated with teacher conflict and mentoring was linked with more closeness; these associations were only detected for children without problem behaviors. These preliminary findings suggest that the associations between Head Start and resources for teachers (support and mentoring) do appear to vary by children's behavior problems but not in the ways that were expected.

### **Hypothesis Testing**

Results for research question one, which examined the direct effect of Head Start on teacher-child relationships, indicated that neither the effect of Head Start on teacher closeness

( $\beta = 0.02, p = 0.51$ ) nor on conflict was significant ( $\beta = -0.03, p = 0.23$ ) (see Table 3). However, Head Start was significantly related to more teacher supports ( $\beta = 0.35, p = 0.00$ ) and mentoring ( $\beta = 0.16, p = 0.00$ ). Additionally, mentoring was related to teachers' reports of the closeness ( $\beta = 0.07, p = 0.00$ ), but not conflict ( $\beta = 0.02, p = 0.26$ ) in their relationships with children. Teacher supports were related to less conflict with children at a trend level ( $\beta = -0.06, p = 0.09$ ). However, contrary to expectations, teacher supports were negatively related to teacher-child closeness ( $\beta = -0.08, p = 0.02$ ). These main effects must be considered cautiously, given that results for the next research questions point to different effects based on children's problem behaviors.

Secondly, research question two examined supports and mentoring as potential mediators of the associations between Head Start and the closeness and conflict in teacher-child relationships. Results indicated there were significant indirect effects of Head Start on teacher-child closeness, mediated through mentoring (0.01; 90% CI [0.01, 0.02];  $p = 0.01$ ). Head Start had a negative indirect effect on teacher closeness, mediated through teacher supports (-0.03; 90% CIs [-0.05, -0.01];  $p = 0.01$ ). Additionally, results showed that Head Start had a positive indirect effect on teacher conflict only through teacher supports (0.01; 90% CI [-0.04, -0.00];  $p = 0.01$ ). Model fit was examined using the  $X^2$ , Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Results suggested good model fit for teacher closeness ( $X^2(16) = 37.51, p = 0.00, CFI = .96, RMSEA = .02$ ) and teacher conflict ( $X^2(16) = 37.35, p = 0.00, CFI = .96, RMSEA = .02$ ).

Lastly, research question three tested children's problem behaviors as a moderator of the direct and mediated effects of Head Start on teacher-child closeness. Results from a multiple group analysis (see Table 4) indicated a direct, negative, effect of Head Start on teacher-child conflict for children with problem behaviors ( $\beta = -0.12, p = 0.03$ ) but not for those without

problem behaviors. As shown in Figure 1, Head Start had a positive effect on teacher supports for children with and without problem behaviors; however Head Start only had a positive effect on mentoring for children without problem behaviors. In turn, mentoring had a positive effect on teacher-child closeness, but only for children without problem behaviors. Supports had a negative effect on teacher-child conflict, but only for those children *with* problem behaviors.

Lastly, the significant indirect effects of Head Start on teacher-child relationships were examined. Results indicated a significant effect of Head Start on teacher-child closeness mediated through mentoring but only for children *without* problem behaviors (0.01, 90% CIs [0.00, 0.02];  $p=0.01$ ). Head Start had a negative indirect effect on teacher conflict, mediated through teacher supports (-0.03, 90% CIs [-0.05, -0.00];  $p=0.01$ ) for children *without* problem behaviors. In addition, results indicated a significant effect of Head Start on teacher-child conflict mediated through teacher supports, but only for children *without* problem behaviors (-0.03; 90% CI [-0.05, -0.01];  $p=0.01$ ). Results did not indicate a significant indirect effect of Head Start on teacher closeness (0.00, -0.04; 90% CIs [-0.00, 0.02], [-0.02, 0.06]) or teacher conflict (0.00, 0.02; 90% CIs [-0.00, 0.02], [-0.08, 0.00]) for children *with* problem behaviors.

### **Discussion**

The current study examined the role of Head Start in supporting teachers in establishing more positive and less conflictual relationships with children, including potential mechanisms of influence, and moderation by children's levels of problem behaviors. Three research questions were investigated. This study fills an important gap in the literature regarding the differential effects of Head Start on teacher-child relationships for children with and without problem behaviors, and by examining specific components of the Head Start program that may serve as mechanisms for these associations. Findings indicated that Head Start had a direct effect on

teacher-child conflict for children exhibiting problem behaviors, and had indirect effects on both teacher-child conflict and closeness for children without problem behaviors.

### **Direct and Indirect Effect of Head Start**

*Does Head Start have a positive effect on teacher-child relationships?*

Results indicated that, when considering the overall sample, Head Start did not have a significant effect on either closeness or conflict in teacher-child relationships. This result is consistent with evidence from previous analysis of the HSIS data, however current findings are mixed. For example, previous analysis of data from the HSIS has demonstrated that Head Start does have a positive impact on teacher-child interactions (Administration for Children and Families, Office of Planning, Research, and Evaluation [ACF, OPRE] 2005), though this effect did not persist through the early elementary school years. However, a more recent analysis of HSIS data found that for children in the four-year-old cohort, their relationships with teachers were more problematic at the end of the 1<sup>st</sup> grade year, and for children in the three-year-old cohort no changes were reported in their relationships with teachers.

This finding suggests the potential positive effect of Head Start on teacher-child relationships; however, it may affect certain children differently. It is well established that Head Start has wide variability in its implementation, thus the current study looked more deeply at the potential mechanisms of influence. Given that the current study did not find a significant direct effect of Head Start on teacher-child relationships, this effect may be present but for different types of children.

*Do teacher supports and mentoring mediate the relationship between Head Start and teacher-child relationships?*

Results did suggest, however, that Head Start had a positive effect on teacher supports and mentoring. This finding suggests that teachers in Head Start programs have more access to resources such as a mental health consultant or mentor/coach. Prior work demonstrates that Head Start teachers are more likely to benefit from additional services such as early intervention and nutrition counseling (Lee, Brooks-Gunn & Schnur, 1988, U.S. Department of Health and Human Services [USDHHS], 2005). These resources are important and previous work has indicated the effectiveness of these teacher resources in improving teachers' relationships with children (Brennan, et al., 2008; Landry, et al., 2009).

The indirect effect of Head Start on teacher-child closeness was mediated by both teacher supports and mentoring for all children in the overall sample. The indirect effect of Head Start on teacher conflict, however, was mediated only by teacher supports. These findings align with previous research that suggests Head Start teachers receiving behavior management support is related to more positive teacher-child relationships. One notable example is that of Webster-Stratton, Reid, and Hammond (2001) who found that in a sample of 14 Head Start centers, children in classrooms that received support on behavior management demonstrated lower levels of problem behaviors and more positive relationships with teachers. The current study, however, extends much of the current work on ECE teacher supports and/or mentoring by examining them as potential mediators of the teacher-child relationship. Findings suggest the potential mediating effect of teacher resources but further work should be done to examine the relationship to teacher-child closeness and conflict independently.

Additionally, results indicated that mentoring had a positive effect on teacher closeness, but no significant effect on conflict. This suggests that teachers receiving mentoring may have more close relationships with children, but that better mentoring may not be related to less

conflictual relationships with children. This result may be due in part to the way in which mentoring is received by teachers as well as how often given that studies suggest that the amount of mentoring teachers receive is related to how effective it is for teachers (Green et al., 2006).

Teacher supports had a moderate, negative, effect on teacher conflict; this finding is consistent with previous work examining teacher supports which has found a relation between teacher supports and more positive relationships with children (Howes, Hamre, Pianta, 2012). Contrary to expectations; teacher supports had a significant, negative effect on teacher-child closeness. This finding suggests that teachers with supports, such as a mental health consultant or someone to turn to for behavior concerns, are not experiencing higher levels of closeness with children. One potential explanation is that teachers with built in supports may rely on those services rather than using them to form more close relationships with children. So, when teachers have support they may not report higher levels of closeness with children but they may report having less conflict with children, as demonstrated with these findings. Teachers' report of reduced conflict may be a result of children working with a specialist and having improved behavior, or by that child spending more time outside of the classroom when working with a specialist.

Research does suggest that teachers utilize resources differently. For example, Landry, Anthony, Swank, and Monseque-Bailey (2009) posit that teachers, especially those in ECE settings, respond differently to the types of supports available to them, suggesting that teachers vary in their acceptance and usage of certain types of early childhood supports. This, too, could contribute to why teachers did not report higher levels of closeness related to the types of supports they received.

### **Children's Behavior as a Moderator**

*Are the direct and mediated effects of Head Start on the teacher-child relationship stronger for children with problem behaviors?*

Children's problem behaviors did moderate both the direct and indirect effect of Head Start on teacher-child relationships. Results showed that for children *with* elevated levels of problem behaviors only a significant direct effect was found and for children *without* problem behaviors, only indirect effects were found. Head Start had a significant, negative, effect on teacher-child conflict for children with problem behaviors. However, no direct effects of Head Start on teacher-child closeness were found for either group of children. This finding suggests that Head Start is related to less conflictual relationships for children with problem behaviors, children whom are largely at risk of negative relationships with teachers. These results are consistent with current literature suggesting that children with problem behaviors benefit most from programs which target teachers, and have been shown to lead to less conflictual relationships with teachers (Filcheck, McNeil, Greco, & Bernard, 2004; Hamre & Pianta, 2001). However, previous work has not examined the moderating effect of children's problem behaviors on teacher closeness and conflict separately.

The current study is unique in that it examines the relationship between Head Start and teacher-child relationships by closeness and conflict independently, something that has not yet been explored in much depth. Additionally, the current study provides an initial look at mechanisms by which Head Start may be linked with more positive teacher-child relationships, specifically for children with elevated problem behaviors.

Findings from the present study add to the existing literature on early learning professional development programs, particularly in regards to which children these services may be most effective in supporting (Welch-Ross, Wolf, Moorehouse, & Rathgeb, 2006). Given that

indirect effects were found only for children *without* problem behaviors, the current study may suggest potential subgroup effects, or that teacher resources may work best for certain types of children.

Head Start programs typically serve children from disadvantaged backgrounds, given that Head Start eligibility is based on income. Children from disadvantaged families are at an increased risk of exhibiting problem behaviors, particularly in ECE settings. One method currently being used to reduce the potential long term negative effects is providing teachers resources to better manage children's behavior (Howes, Hamre, Pianta, 2012). Findings from the current study suggest that Head Start is related to teachers receiving more supports and/or mentoring; these resources may then serve as a mechanism in bettering teacher-child relationships. However, more work should be done looking more closely at which individual supports may be useful to teachers, particularly those serving children with problem behaviors.

Results also indicated an indirect effect of Head Start on higher levels of teacher closeness through mentoring and/or having supports, but only for children *without* problem behaviors. In other words, children in Head Start were more likely to be rated as closer to teachers, that relationship being partially explained by having a mentor or teacher supports. In addition, an indirect effect of Head Start on teacher conflict was found, through teacher supports for children without problem behaviors. Given that all children in the current study were enrolled in Head Start, together, these findings shed light on the potential positive effect Head Start may have on teacher-child relationships for at-risk children.

Interestingly, no significant indirect effects of Head Start were found for children with problem behaviors on teacher closeness or conflict. One potential reason for the lack of significant indirect effects may be that teacher supports and/or mentoring in Head Start are not

providing the necessary skills to support teacher-child relationships for these children. While teacher resources are embedded in the Head Start program model, teachers do not have the same access or type of resources across Head Start programs. This variability in access and type of resource could contribute to teacher's perceptions of closeness and/or conflict with children. Future work should look at potential ways to tailor mentoring or teacher supports, such as mental health consultation, to be more useful to teacher-child dyads of children with problem behaviors.

In addition, it may be that children with problem behaviors need more tailored efforts to improve the teacher-child relationship. However, given the direct effect of Head Start on teacher-child conflict for children *with* problem behaviors, some component of Head Start is working to support the teacher-child relationship for these children. Head Start programs maintain a low teacher-child ratio and have built in supports called family advocates that can be used as support for teachers in working with families. These components of Head Start programs may also help in supporting the teacher-child relationships. Future research examining Head Start and the teacher-child relationships should look at what components of Head Start may be most effective in reducing teacher conflict or increasing teacher closeness for children with problem behaviors.

### **Limitations and Future Directions**

Although the current study sheds light on potential effect of Head Start on teacher-child relationships, particularly for children exhibiting elevated levels of problem behaviors, several limitations need to be addressed. First, measurement of supports available to teachers was limited; teachers only reported on whether they had a specific type of support (coded yes/no). Future work examining the potential benefits of Head Start, particularly regarding services available to teachers, may benefit from a more thorough examination of the more specific

sources of supports available such as behavior specialists, health care workers, and mental health consultants. In addition, teachers did not report on how often, or in what ways, they utilized these supports. This information could be useful when examining which supports are most beneficial in Head Start centers for improving teacher-child relationships, particularly for teachers managing children with elevated levels of problem behaviors.

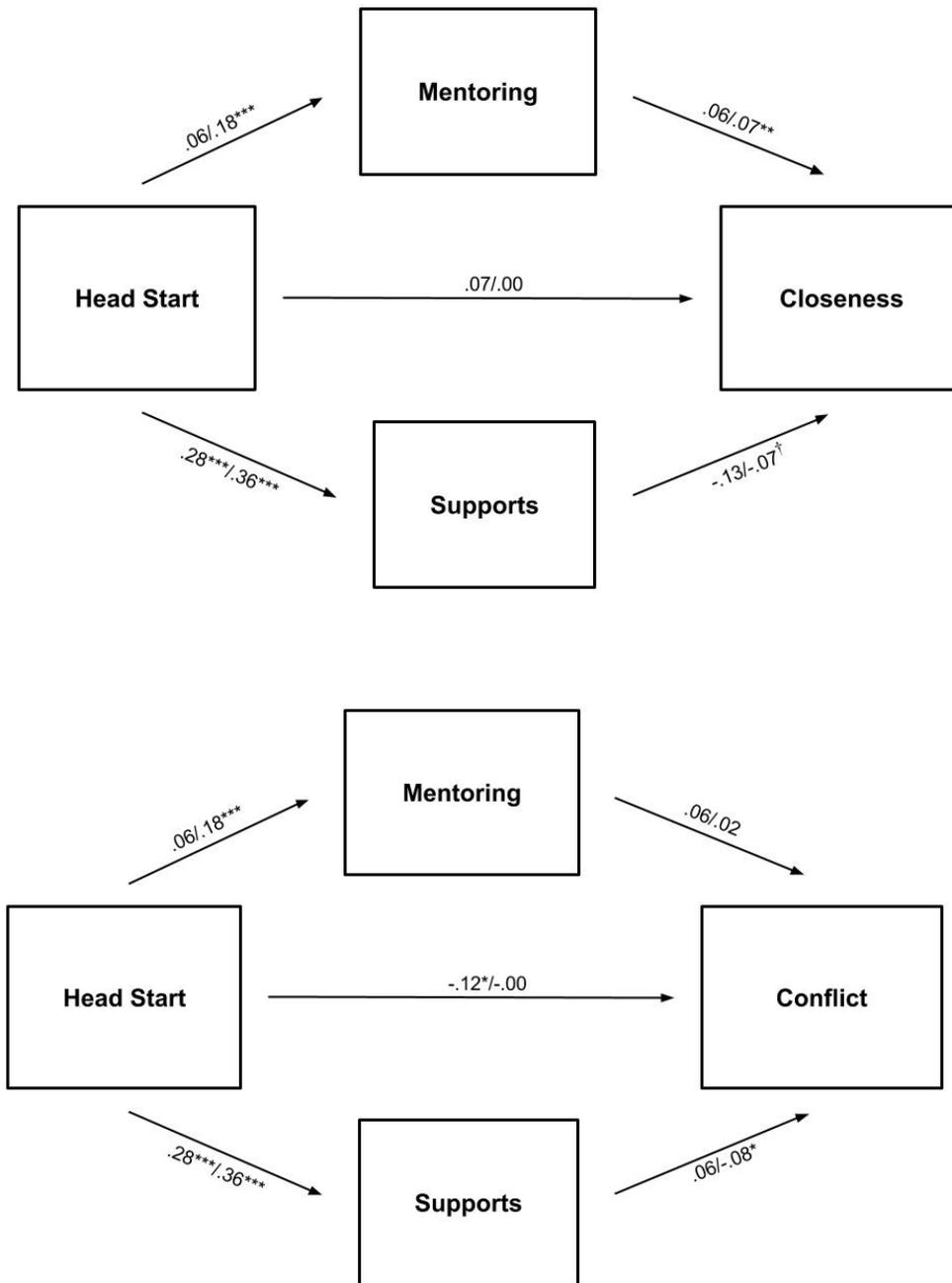
The current study employs a cross-sectional design, capturing data collected based on just one school year. Future research should look at the effect of mentoring and teacher supports on changes in the teacher-child relationship over time. In addition, given that the current study utilizes data from a teacher questionnaire based on one time point, it is important to consider that teacher ratings of teacher-child relationships may vary based on the teacher and their characteristics such as race or gender. Further, future work examining the particular impact of teacher-child relationships for children exhibiting problem behaviors is important as these children are at elevated risk for developing negative relationships with teachers (Pianta & Stuhlman, 2004).

### **Conclusion**

The current study examined the role of Head Start in supporting teachers in establishing more positive and less conflictual relationships with children, including potential mechanisms of influence, and moderation, by children's levels of problem behaviors. While no significant direct effect of Head Start on teacher-child closeness was detected, the indirect effect of Head Start on teacher-child relationships was mediated through teacher supports and mentoring for children *without* problem behaviors. These findings have implications for future work on the effect of Head Start and can help to inform other ECE programs on the potential benefits of providing teachers with resources. Additional research on understanding how Head Start

programs can promote positive teacher-child relationships, specifically for children with problem behaviors is needed. Furthermore, a more thorough examination of professional development services may provide added rationale for early learning programs adopting potentially helpful services, especially those serving at risk children.

Figure 1



Note: Path coefficients are standardized estimates from multiple group analysis. Estimates are for children with/without problem behavior. The hypothesized paths were shown to be equivalent across groups (children with and without problem behavior) except for the direct effect of Head

Start on teacher-child relationships, supports, and mentoring. Indirect effects of Head Start on teacher closeness (for children with and without problem behaviors; respectively) through teacher supports (-0.04/-0.03\*) and mentoring (0.00/0.01\*). Indirect effects of Head Start on teacher conflict (for children with and without problem behaviors; respectively) through teacher supports (0.02/-0.03\*) and mentoring (0.00/0.00). Covariates include teacher gender, teacher age, child's race, gender, age, socioeconomic status, and mother's education.

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , †  $p < .10$

Table 1  
*Descriptive Statistics for all Study Variables (N = 2731)*

Categorical variables	Children without problem behavior (n = 2286)		Children with problem behavior (n = 445)					
	% Yes	% No	% Yes	% No				
<b>Covariates</b>								
Child gender <sup>a</sup>	52.19	47.81	37.75	62.25				
Teacher gender <sup>b</sup>	98.05	1.95	99.15	0.85				
Ethnic minority <sup>c</sup>	67.76	32.24	71.24	28.76				
<b>Predictor</b>								
Head Start	76.86	23.14	76.63	23.37				
Continuous variables	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max
<b>Covariates</b>								
Income-to-needs ratio	1.38	0.81	0.08	7	1.26	0.82	0.17	7
Child age (in months)	49.02	6.81	33.60	71.70	49.67	6.87	35.24	63.32
Mothers education	0.99	0.81	0	2	0.72	0.78	0	2
Teacher age (in years)	37.09	1.31	34.45	38.67	36.99	1.64	33.25	39.28
<b>Outcomes</b>								
Mentoring	1.69	1.61	0	5	1.74	1.73	0	5
Supports	3.84	2.04	0	5	3.80	2.06	0	5
Closeness	30.80	4.11	7	35	29.56	4.61	13	35
Conflict	13.44	5.94	7	37	15.48	6.95	7	38

<sup>a</sup> Child gender: 0 = male, 1 = female. <sup>b</sup> Teacher gender: 0 = male, 1 = female.

<sup>c</sup> Ethnic minority: 0 = non- minority, 1 = minority status

Table 2

*Correlations for Variables of Interest*

Variables	1	2	3	4	5
1. Head Start status	1.00	0.29***	0.03	0.05	-0.09
2. Supports	0.35***	1.00	0.03	-0.07	0.02
3. Mentoring	0.13***	0.08**	1.00	0.07	0.04
4. Teacher Closeness	0.01	-0.04 <sup>†</sup>	0.07**	1.00	-0.30***
5. Teacher Conflict	-0.03	-0.06*	0.01	-0.27***	1.00

\*Correlations are presented for children with problem behaviors above diagonal and without problem behaviors below

<sup>†</sup> p < .10. \* p < .05. \*\* p < .01. \*\*\* p < .001

Table 3

*Direct and indirect effect of Head Start on teacher-child relationships for overall sample (n=2731)*

Predictors	Outcomes					
	Supports			Mentoring		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Head Start*	0.35	0.02	0.00	0.16	0.03	0.00
	Teacher-Child Relationship					
	Closeness			Conflict		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Head Start <sup>a</sup>	0.02	0.02	0.51	-0.03	0.02	0.23
Supports	-0.08	0.03	0.02	-0.06	0.03	0.09
Mentoring	0.07	0.22	0.00	0.02	0.02	0.26
Child Covariates						
Child age (in months)	0.03	0.02	0.00	-0.06	0.02	0.00
Child gender <sup>b</sup>	0.12	0.02	0.00	-0.18	0.02	0.00
Ethnic minority <sup>c</sup>	0.03	0.02	0.22	-0.03	0.02	0.11
Income-to-needs ratio	0.03	0.02	0.16	0.07	0.02	0.82
Teacher Covariates						
Teacher age (in years)	-0.09	0.02	0.00	0.00	0.02	0.88
Teacher gender <sup>d</sup>	-0.03	0.02	0.17	0.02	0.02	0.45

\* Coefficients are the same for teacher closeness and conflict. <sup>a</sup> Head Start: 0=control, 1=Head Start.

<sup>b</sup> Child gender: 0 = male, 1 = female. <sup>c</sup> Ethnic minority: 0 = non- minority, 1 = minority status.

<sup>d</sup> Teacher gender: 0 = male, 1 = female.

Table 4  
*Predictors of teacher-child relationships by children’s problem behavior (n=2731)*

Predictors	Teacher-Child Relationship											
	Closeness						Conflict					
	No problem behavior			Problem Behavior			No Problem Behavior			Problem Behavior		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Head Start	0.00	0.03	0.91	0.07	0.06	0.21	-0.00	0.03	0.87	-0.12	0.06	0.03
Supports	-0.07	0.04	0.06	-0.13	0.09	0.15	-0.08	0.04	0.02	0.07	0.09	0.46
Mentoring	0.07	0.02	0.00	0.06	0.05	0.29	0.02	0.02	0.53	0.06	0.05	0.29
Covariates												
Child age (in months)	0.03	0.02	0.15	0.03	0.02	0.15	-0.06	0.02	0.00	-0.05	0.02	0.00
Child gender <sup>a</sup>	0.12	0.02	0.00	0.10	0.02	0.00	-0.19	0.02	0.00	-0.16	0.02	0.00
Ethnic minority <sup>b</sup>	0.03	0.02	0.23	0.02	0.02	0.23	-0.04	0.02	0.10	-0.03	0.02	0.10
Income-to-needs ratio	0.04	0.02	0.12	0.03	0.02	0.12	0.07	0.02	0.00	0.06	0.02	0.00
Mothers education	0.03	0.02	0.12	0.03	0.02	0.13	-0.01	0.02	0.71	-0.01	0.02	0.71
Teacher age (in years)	-0.08	0.02	0.00	-0.08	0.02	0.00	-0.00	0.02	0.99	-0.00	0.02	0.99
Teacher gender <sup>c</sup>	-0.03	0.02	0.15	-0.02	0.01	0.16	0.02	0.02	0.46	0.01	0.01	0.46

Note: Children without problem behavior (*n*=2286), children with problem behaviors (*n*=445). <sup>a</sup>Child gender: 0 = male, 1 = female. <sup>b</sup>Ethnic minority: 0 = non- minority, 1 = minority status. <sup>c</sup>Teacher gender: 0 = male, 1 = female.

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