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Caregiver Emotional Expressiveness, Child Emotion Regulation, and Child Behavior Problems among Head Start Families

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Abstract

The present study examined the relationships between caregivers' self-reported positive and negative emotional expressiveness, observer assessments of children's emotion regulation, and teachers' reports of children's internalizing and externalizing behaviors in a sample of 97 primarily African American and Hispanic Head Start families. Results indicated that higher caregiver negativity and lower child emotion regulation independently predicted more internalizing behavior problems in children. Additionally, children's externalizing behavior problems were negatively predicted by caregivers' self-reports of positive emotional expressiveness. Importantly, results also suggested that caregivers' emotional expressiveness and children's behavioral problems may be non-linearly related, and that child gender may play an important moderating role. These results emphasize the importance of family emotional climate and child emotion regulation in the behavioral development of preschool-age children, and highlight the need for improved theoretical and practical understanding of socioemotional development in diverse populations.

Keywords

Behavior problems; emotion regulation; socialization; poverty

Introduction

Research suggests that children's ability to regulate positive and negative emotions plays an important role in their success in getting along with peers and teachers, as well as in their long-term behavioral adjustment (Eisenberg et al., 2001; Ramsden & Hubbard, 2002; Schultz, Izard, & Bear, 2004). Although much research on children's emotion regulation has focused on the role of temperamental reactivity, additional attention has been paid to ways that adults socialize children's development of optimal self-regulation (Denham & Grout, 1993; Eisenberg & Fabes, 1992). Specifically, one way that young children are thought to learn about their emotions and the emotions of others is through observing and modeling the emotional expressiveness of their caregivers (Eisenberg, Cumberland, & Spinrad, 1998). In turn, children who develop stronger emotion regulation skills have been found to show fewer

internalizing and externalizing behavior problems in school settings (Cole, Zahn-Waxler, Fox, Usher, & Welsh, 1996; Eisenberg et al., 2001).

In the present study, we tested this model of emotional development by asking whether preschoolers' emotion regulation serves as a partial mediator linking caregivers' emotion socialization (as indexed by their reports of their own emotional expressiveness) and Head Start teachers' reports of children's behavior problems. Past research with middle-class, White, suburban preschoolers has found support for a similar model in which generalized child regulation (rather than emotion-specific regulation) served as a mediating mechanism between mothers' expressiveness and children's externalizing behavior (Eisenberg et al., 2001). In the present study, we were specifically interested in the role of child emotion regulation, as well as in testing whether this 'basic process' model holds true empirically in a sample of low-income, primarily ethnic minority Head Start children. Although emotional development can be placed within larger economic and sociocultural contexts (Cole & Dennis, 1998; García Coll et al., 1996), few studies have examined whether links between families' emotion socialization and child behavior problems may be similar or different for low-income, ethnic minority children as compared with their White, more economically advantaged counterparts (Halberstadt, Crisp, & Eaton, 1999; Jones & Garner, 1998; Raver & Spagnola, 2002). Exploring these relationships among low-income samples of color is essential for the formation of an empirically accurate, cohesive model of socioemotional competence across ecological contexts (Knight & Hill, 1998; Raver, Garner, & Smith-Donald, 2007), as well as for informing policies and interventions that often target these populations. Based on emerging evidence that linkages between caregiver emotional expressiveness and children's development may be better characterized in non-linear rather than linear terms, we explored whether children's optimal development of emotion regulation may hinge on low to moderate rather than extreme levels of caregiver expressiveness (Gottman, Fainsilber Katz, & Hooven, 1997; Halberstadt et al., 1999). We also tested for the potential moderating roles of child race/ethnicity and gender to understand potential differences across demographic groups within a diverse sample.

Emotion Regulation

Emotion regulation is defined as the 'extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals' (Thompson, 1994, pp. 27–28). Children's regulation of their own positive and negative emotions can be characterized as a multidimensional process that unfolds over time, and includes the intensity of children's affective experience and expression, the speed with which children become affectively aroused and subsequently less distressed or excited, and the behavioral, attentional, and cognitive strategies that they deploy to regain or maintain emotional equilibrium (Calkins & Fox, 2002; Cole, Martin, & Dennis, 2004; Denham et al., 2003). Children's emotion regulation has been studied at neurophysiologic, microanalytic, and molar levels in laboratory, home, and school contexts, with consensus suggesting that children who demonstrate difficulty in modulating feelings of anger, distress, excitement, and frustration are at risk for higher levels of externalizing behavior problems, including aggression and antisocial behavior (Cole et al., 1996; Eisenberg et al., 2001). Less research has examined

emotion regulation as a predictor of children's internalizing problems. Some theoretical and empirical evidence points to a negative association between children's emotion regulation skills and their depressive and anxious symptoms (Cole et al., 1996; Gross & Muñoz, 1995), yet other research have not supported such claims (Eisenberg et al., 2001).

In this study, we tested the links between children's expressed regulation of positive and negative emotions and teachers' reports of both internalizing and externalizing behavior problems. As Thompson's (1994) definition implies, emotion regulation encapsulates a complex interaction of systems, including intrapsychic (i.e., cognitive, neuroendocrine) and interpersonal processes that can be studied at multiple levels within and across instances where children encounter emotionally arousing stimuli, people, and situations (Gross & Thompson, 2007). One research approach focuses on second-by-second changes in amplitudes, slopes, and ranges of children's physiological, facial, and vocal responses in the context of lab-based emotion-eliciting paradigms, providing significant insights regarding the complex interplay of neurobiological, behavioral, and interpersonal processes (see Calkins & Fox, 2002 for review). In contrast, a second tradition has considered more global emotion regulation by analyzing caregivers' and teachers' reports of children's emotion regulatory behaviors (alone or in combination with naturalistic observations of children's emotional displays) as predictors of relationships with peers (Arsenio, Cooperman, & Lover, 2000; Denham et al., 2003). The present study sought a theoretical and methodological 'middle ground' between these two traditions by examining children's molar-level emotion regulation (indexed by assessors' ratings of expressions of anger, distress, and positive affect during a series of lab-based tasks that have been adapted for field settings) as a hypothesized mediating mechanism linking caregivers' reports of emotion socialization in the home and teachers' ratings of children's behavioral difficulty in preschool settings. In so doing, we aimed to shed light on ways that children's emotional processes both shape and are shaped by relationships with family, peers, and other social systems (Campos, Campos, & Barrett, 1989).

Caregiver Emotion Socialization and Expressiveness

In early childhood, the most proximal context in which children begin to understand emotional processes is the home, where they spend the majority of their time with their parents or primary caregivers. One common process by which children are socialized to the use of emotions is through observing, referencing, and modeling their caregivers' day-to-day emotional behaviors. The general emotional climate of the family and, more specifically, the emotional expressiveness of a caregiver within the familial context have been shown to shape children's understanding and expression of their emotions (Denham & Grout, 1993; Eisenberg et al., 1998).

Emotional expressiveness can be defined in terms of multiple dimensions, including duration, valence, intensity, purity, and clarity (Halberstadt et al., 1999; Thompson, 1994), with the majority of research focusing on positive vs. negative emotion. Specifically, greater frequency of positive caregiver emotional expressiveness has been linked with greater emotion regulation, more adaptive behavioral competence, and fewer behavioral problems in children (Denham & Grout, 1993; Garner, 1995). Results concerning frequency of negative

expressiveness have been less conclusive, especially in regard to its association with children's emotion regulation (Halberstadt et al., 1999; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Despite inconsistencies in findings, a handful of studies have found links between high frequency of negative caregiver expressiveness and children's externalizing behavior such as aggression (Boyum & Parke, 1995; Eisenberg et al., 2001).

In addition to empirical evidence for linear relationships between caregiver expressiveness and child outcomes, theory also suggests the possibility of non-linear associations (Halberstadt et al., 1999; Morris et al., 2007). Although studies have shown that high frequency of negative caregiver expressiveness is associated with less optimal child outcomes, it is also possible that children who are exposed to very few negative emotions will not properly understand or process these emotions because their caregivers have not modeled proper coping mechanisms (Gottman et al., 1997). This suggests that a moderately low frequency of negative expressiveness may be optimal for children's socioemotional development. This complex relationship may also explain inconsistencies in past findings associated with negativity (Halberstadt et al., 1999; Morris et al., 2007).

Context and Ecology

As previously noted, a child's immediate familial context plays a critical role in his or her socioemotional development. In addition, children's emotional development is nested within larger ecological contexts, including schools, neighborhoods, and cultural communities (Bronfenbrenner & Morris, 1998). Although many low-income children develop high levels of emotional competence in warm, emotionally positive households, many children living in poverty are at increased risk for emotional difficulty due to exposure to a number of familial and macro-level stressors (Aber, Jones, & Cohen, 2000; Ackerman, Brown, & Izard, 2004; Raver, 2004). Caregivers who express greater frustration, fear, or anxiety as a result of their stressful context may shape children's responses to emotionally arousing stimuli in ways that may be proximally adaptive but that may also compromise children's longer-term functioning (McLoyd, 1990). Correspondingly, children facing more emotionally negative socialization processes and higher exposure to poverty-related stressors have been found to display significantly more adjustment and behavior problems than their middle-income peers (Ackerman et al., 2004; Bolger, Patterson, Thompson, & Kupersmidt, 1995; Qi & Kaiser, 2003).

Past research also suggests that the racially and culturally framed familial context in which children are socialized may have implications for caregivers' use of particular emotion socialization behaviors or for children's interpretations of these behaviors (Cunningham, Kliewer, & Garner, 2009; García Coll et al., 1996). Caregivers' values, attitudes, and socialization practices are shaped by cultural and community membership and reflect their efforts to support their children's competence in the contexts in which they live (Cole & Dennis, 1998). For example, ecological models of optimal parenting among ethnic minority families facing economic hardship and high levels of environmental threat (e.g., higher incidence of community violence) suggest that African-American and Hispanic parents in urban communities may use more authoritarian parenting practices, lower expressions of positive affect and affection, and higher levels of directiveness and moderately negative

affect than their White counterparts (Berlin, Brooks-Gunn, Spiker, & Zaslow, 1995; García Coll et al., 1996). In addition, models of parenting style among urban African-American and Hispanic families suggest that caregivers of color may use high levels of positive emotional expressiveness combined with high levels of disciplinary control in ways that have important but relatively untested implications for children's emotion socialization (Coolahan, McWayne, Fantuzzo, & Grim, 2002; Zayas, 1994).

Importantly, research has also found specific differences in parenting practices and child outcomes for ethnic minority boys vs. girls (Cervantes, 2002; Cunningham et al., 2009), suggesting gender as a potentially important moderator within racially diverse contexts. These gender differences are particularly strong when considering emotion-related practices and may reflect different norms around emotion socialization for boys vs. girls. Research from middle-class White populations has found that caregivers tend to discuss emotions more openly around female children than male children, while encouraging girls to suppress anger-related emotional expressions and boys to inhibit sad or fearful responses (Zahn-Waxler, 2000). More research is needed to understand whether these different practices extend to diverse populations.

Despite repeated calls for increased study of emotion socialization within varied ecological and cultural contexts, most research to date has focused on samples where the majority of adult and child participants are middle class, White, and non-urban (see Cunningham et al., 2009 and Izard et al., 2008 for notable exceptions). Although some of the above theoretical and empirical evidence suggests that ethnic minority families may exhibit different emotion socialization practices from their middle-income, White peers (Hofferth, 2003; McLoyd, 1990), other work has not supported such claims (Garner, Jones, & Miner, 1994; Garner & Spears, 2000). Additional research is needed to explore whether patterns of association between caregiver emotional expressiveness, child emotion regulation, and child behavior problems are similar or different across different communities of color.

The Present Study

The primary aim of this study was to examine the relationship between frequency of positive and negative caregiver emotional expressiveness and child internalizing and externalizing behavioral outcomes within a sample of urban Head Start children. Because past research has implicated emotion regulation as both an outcome of caregiver emotional expressiveness and a predictor of behavioral competence, child emotion regulation was tested as a partial mediator of this relationship. Our aim was to build upon past work by testing this model with a sample of low-income, ethnically diverse children. Although testing relationships among caregivers' emotion socialization practices and children's outcomes in diverse populations is rare, some studies have found similarities in relationships for ethnic minority and majority, and low- and middle-income children (Garner & Spears, 2000; Garner et al., 1994). Because of this, we hypothesized that results in the present sample would be similar to those from studies with middle-income, White samples. Specifically, we hypothesized that higher frequency of negative caregiver emotional expressiveness and lower frequency of positive expressiveness would predict correspondingly higher levels of internalizing and externalizing behavior problems among the children in our sample. We also hypothesized

that caregivers' self-reports of higher frequency of negative expressiveness would predict lower levels of children's emotion regulation (with the opposite relationship expected for caregivers' positive expressiveness), which would in turn predict greater levels of internalizing and externalizing problems.

In addition to these linear relationships, we explored whether there was evidence for a non-linear relationship between caregivers' negative emotional expressiveness and child outcomes. Specifically, we hypothesized that a low to moderate frequency of caregiver negativity would be associated with lower levels of teacher-reported child behavior problems in the classroom setting. Conversely, reports of both high and extremely low frequency of caregiver negative expressiveness were expected to be related to more behavioral problems. Finally, we considered the role of child gender and race/ethnicity as two key moderators, allowing us to test whether our models of emotion socialization were equivalent across different subgroups of children. Because research relating caregivers' emotion socialization practices to children's developmental outcomes in different demographic subgroups is limited, our exploration of moderation was considered to be exploratory.

Method

Procedure

The sample for the present study came from the Chicago School Readiness Project¹ (CSRP), a large classroom-based intervention trial that targeted Head Start children's socioemotional skills and school readiness. Site-level requirements for participation in the CSRP trial included: (1) receipt of Head Start funding; (2) having at least two 'full-day' preschool classrooms; and (3) location in one of seven high-poverty neighborhoods in Chicago. (For full inclusion criteria, see Raver et al., 2008.) Eighteen sites that met these criteria self-nominated to take part in the study, with two classrooms in each site selected for participation. A total of 35 classrooms were included in analyses after one site lost funding for a second classroom shortly after selection into the study. Caregivers of 83 percent of all English- and Spanish-speaking children in these classrooms gave consent for their participation. From the 602 consented children, a subgroup of 97 (16.11 percent) from 10 sites was randomly selected for and agreed to participate in the present embedded study of family emotion socialization. The sample size of the present study was limited in order to minimize the additional burden on caregivers that resulted from extending interviews to include a measure of emotional expressiveness that was not directly related to the intervention study. All measures for the present study were completed prior to the larger study's intervention.

As part of the data collection process, children's primary caregivers were asked to complete in-person interviews with trained and reliable data collectors. Interviews with Spanish-speaking participants were conducted with bilingual assessors using pre-translated and back-translated questionnaires. When caregivers were unable to attend interviews in person, questionnaires were completed over the phone. Children's emotion regulation was assessed in the schools by an ethnically diverse set of independent raters who were trained and tested

¹The CSRP is not associated with The Chicago School®, which is a trademark of The Chicago School of Professional Psychology.

for reliability prior to data collection. Forty-seven teachers from 19 classrooms in the 10 sites (including the site with only one Head Start classroom) were also asked to rate children's internalizing and externalizing behavior. Because many classrooms had more than one teacher, two teacher reports of child behavior were collected whenever possible. On average, teachers reported on 3.86 children each ($SD = 2.19$). Caregivers and teachers were provided modest monetary compensation for their time.

Ninety-seven Head Start preschool children and their primary caregivers (90 mothers, 5 fathers, and 2 grandmothers) took part in this study. The mean age for the preschoolers was 50.88 months ($SD = 6.82$, range = 37–72), and 56 were females. Forty-three children were identified as African-American, 40 as Hispanic, seven as biracial, five as non-Hispanic White, one as Native American, and one as 'other.' Children resided in families with a median monthly household income of \$1000 (range = \$0–\$3521). Sixty-six of the 97 children were from single-parent households. Twenty-six caregivers reported having less than a 12th-grade education, 37 had a high school diploma or its equivalent, 33 had attended some college or higher, and one did not report on his or her education level. Children were selected from Head Start sites where, on average, 53 percent of children were identified as African-American, 86 percent of families were headed by a single parent, and 28 percent of households had no caregivers with a high school diploma. Children and caregivers in the present subsample did not differ significantly from the larger study's sample in age, race, income, or caregiver education. At the site level, the 10 sites selected for the present embedded study had significantly lower percentages of African-American children compared with the other 8 sites from the larger CSRP study.

Measures

Primary Caregiver Emotional Expressiveness.—Caregiver emotional expressiveness was self-reported by primary caregivers using a shortened form of the self-expressiveness in the family questionnaire (SEFQ), which is a measure of frequency (1–3 = never/rarely, 4–6 = sometimes, 7–9 = very frequently) of positive and negative expressiveness within the family context (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). Fourteen items were selected for the shortened version by the second author, who used her previous work with low-income families of color to identify items with high factor loadings and face validity (Raver & Jacobs, 1999; Raver & Spagnola, 2002). Seven items indicating frequency of positive expressiveness (e.g., 'telling family members how happy you are') and seven indicating frequency of negative expressiveness (e.g., 'expressing anger at someone's carelessness') were averaged to form subscale scores. Similar to findings in past studies of emotional expressiveness (Clark & Phares, 2004; Halberstadt et al., 1999), positive and negative caregiver expressiveness were not significantly correlated (see Table 1). In order to reduce bias and increase statistical power (Roth, 1994), missing data for seven cases on a small number of items (equaling less than 1 percent of the total number of SEFQ items) were replaced using group mean substitution for the relevant item.

Past studies have confirmed the SEFQ's reliability and validity in low-income samples (Raver & Jacobs, 1999; Raver & Spagnola, 2002), as well as its validity compared with observed measures of caregivers' expressiveness in laboratory settings (Halberstadt et al.,

1995). Results of tests for measurement equivalence in the present sample revealed no statistically significant chi-square differences across race, gender, or poverty risk status (using an income-to-needs cutoff of .5, which represents deep poverty), indicating that the shortened version of SEFQ measured emotional expressiveness in similar ways across subgroups. In the present sample, internal consistency for the positive and negative subscales was $\alpha = .72$ and $\alpha = .71$, respectively. Reliability scores, means, and standard deviations of the positive and negative subscales in the present sample were also similar to those found in past samples using the 14-item form, with middle-income African-American and White samples showing slightly higher reported frequency of negative expressiveness (A. G. Halberstadt, personal communication, November 24, 2009).

Child Emotion Regulation.—Child emotion regulation was measured using the emotion regulation subscale of the preschool self-regulation assessment (PSRA; Smith-Donald, Raver, Hayes, & Richardson, 2007). The PSRA is an observer-rated battery of tasks designed to capture emotional, behavioral, and attentional self-regulatory skills in Head Start children. The battery includes 10 tasks (4 delay tasks intended to capture effortful control, 3 executive functioning tasks, and 3 compliance tasks) and a 28-item assessor report that included a subscale for children's emotions and emotional regulation. (For more information on the specific tasks, see Smith-Donald et al., 2007.) Internal consistency for the PSRA in past studies has been high ($\alpha = .87$; Smith-Donald et al., 2007). Efforts have confirmed the PSRA's measurement equivalence across gender and race/ethnicity, specifically for African-Americans and Latinos (Raver et al., 2008), as well as its validity within Head Start populations (Smith-Donald et al., 2007). To establish inter-rater reliability, 20 percent of assessments were videotaped and double coded. Intra-class correlations ranged from .73 to .99 for the PSRA measure and PSRA assessor report.

To capture real-time emotion regulation for the present study, assessors scored items measuring children's intensity and frequency of positive and negative emotion (including 'broad-brush' descriptors of positive affect such as engagement, confidence, and expressions of happiness, as well as of negative affect including defiance, expressions of anger or irritability, and refusal to adhere to task instructions). Items captured children's facial, vocal, and motor behaviors, following Denham et al. (2003). Emotion regulation items were aggregated across all assessor observations during the PSRA battery of tasks and the PSRA assessor report, and were measured on both continuous (e.g., level of engagement/responsiveness with assessor) and dichotomous (e.g., presence of positivity) scales, depending on the nature of the task. All emotion regulation items were averaged and standardized to form the emotion regulation subscale ($\alpha = .88$), yielding an index of children's molar rather than micro-level regulatory skill in the context of interactions with others.

Child Internalizing and Externalizing Behavior.—Child internalizing and externalizing behaviors were assessed using an adapted version of the behavioral problems index (BPI; Zill, 1990), which captures the frequency and type of child behavior problems observed in the three months preceding assessment. This scale has been validated in its original form for use with White, African-American, and Hispanic children in the USA

(Spencer, Fitch, Grogan-Kaylor, & Mcbeath, 2005). For the present study, two items were added to the original 28-item scale in order to clarify situational context (e.g., behavior at home vs. at school and interactions with children vs. teachers). To reduce common rater bias between measures of caregiver emotional expressiveness and child behavior, the BPI was scored by children's classroom teachers rather than by caregivers. Ninety-nine percent of the sample received ratings from two teachers, whose scores were averaged for analyses. The average correlation between both teachers' ratings for one child was moderate, $r = .46$, $p < .01$.

Following the procedure of the national longitudinal survey of youth (Zill, 1990), the overall BPI measure was divided into subscales capturing internalizing and externalizing behavior problems. Teachers responded to each question with answers of 'not', 'sometimes', or 'often true'. The internalizing subscale included items such as 'too dependent on others' and 'unhappy, sad, or depressed', whereas the externalizing subscale included items such as 'argues too much' and 'not liked by other children'. Consistent with past research in diverse populations of children (Formozo, Gonzales, & Aiken, 2000), children's internalizing and externalizing scores were found to be moderately correlated with one another in this sample. Cronbach's alphas for the subscales revealed internal consistencies of $\alpha = .76$ for internalizing and $\alpha = .91$ for externalizing behavior problems.

Child- and Family-level Covariates.—Demographic information was collected from the primary caregiver and included the following: the child's gender, age at assessment, and race/ethnicity; the caregiver's relationship to the child, marital status, and highest level of education completed; the race/ethnicity of child's primary caregiver; the number of individuals in the household; and the average household monthly income.

Covariates in the present set of analyses included household income, child gender, and child race or ethnicity. Gender and race/ethnicity were also tested as moderators. Household income was operationalized using a continuous income-to-needs ratio, which was calculated by multiplying the family's monthly household income by 12 and dividing this number by the national poverty threshold for the given family size. In the present sample, the average income-to-needs ratio was .73 ($SD = .56$), indicating that the majority of families fell below the poverty line of 1.00. For all analyses involving gender, boys were coded as 1 and girls were coded as 0. When included as a covariate, child race/ethnicity was dichotomized into two groups: children of African-American caregivers (known as 'AA' and coded as 1) and children of non-African-American caregivers (known as 'non-AA' and coded as 0). Because the number of non-Hispanic White children in the present sample was small, these children were grouped with the children of Hispanic caregivers to form the 'non-AA' reference group. The sample consisted of 44 AA children (including one Native American child whose caregiver identified as African-American) and 53 non-AA children (including 40 Hispanic children, 7 biracial children whose primary caregivers identified as Hispanic, 5 non-Hispanic White children, and 1 child identified as 'other' whose primary caregiver identified as Hispanic). Although an imperfect solution regarding racial and ethnic heterogeneity, this process of dichotomization in the coding of the race/ethnicity covariate was chosen over listwise deletion of non-Hispanic White children to secure sample representativeness of the Head Start context and conserve statistical power. (See US Bureau of the Census, 2003 for a

discussion of aggregation along dimensions of race/ethnicity.) Importantly, when making inferences about specific differences across racial or ethnic groups (namely for tests of racial moderation and descriptive analyses across racial groups), the five non-Hispanic White children were removed from the sample in order to make more carefully specified interpretations of results for children of African-American vs. Hispanic caregivers.

Results

The results of this study are presented in three sections. Firstly, descriptive analyses are provided. Secondly, results of bivariate correlations and OLS regression analyses predicting child internalizing and externalizing behavior from caregiver emotional expressiveness and child emotion regulation are detailed. Thirdly, results of regression analyses that include interaction terms to capture the moderating effects of child gender and racial/ethnic classification are presented. Because the present study's small sample size ($N = 97$) limits the likelihood of achieving statistical significance, the alpha level for all analyses was set at .05 despite the number of tests conducted.

Descriptive Analyses

Descriptive statistics for child and caregiver variables are presented in Table 2. In order to better understand the relationships between the variables of interest and the sample's demographic features, independent sample t tests, one-way ANOVAs, and correlations were conducted. Results revealed no significant differences in reports of caregiver expressiveness, child emotion regulation, or child behavior based on child race/ethnicity (African-American vs. Hispanic), child gender, household income, caregiver marital status, caregiver education, or whether the caregiver was a mother, a father, or a grandmother.

Regression Analyses Predicting Child Behavior

Correlation analyses were first conducted to examine the zero-order relationships between variables of interest (see Table 1). One-tailed correlations were used instead of two-tailed correlations in order to test the unidirectional hypotheses stated above. Multiple ordinary least squares regression was then used to examine the relationships between caregiver emotional expressiveness, child emotion regulation, and child behavior while adjusting for demographic covariates. Two separate regression analyses were conducted with internalizing and externalizing child behavior as dependent variables. Both models included three steps, the first of which incorporated child gender, child race/ethnicity, and household income as child-level covariates. Step 2 of each model included the previously mentioned covariates along with measures of child emotion regulation and positive and negative caregiver emotional expressiveness added simultaneously. Step 3, which assessed the presence of a non-linear relationship, included all previous variables as well as a quadratic term for caregiver negative emotional expressiveness that was created by squaring each child's linear term for negative expressiveness. All continuous predictor variables were centered for regression analyses (Aiken & West, 1991).

Model 1, which predicted internalizing behavior using positive and negative caregiver emotional expressiveness and child emotion regulation as predictor variables, was significant

overall, $R^2 = .27$, $F(7, 89) = 4.65$, $p < .01$. As shown in Table 3, the coefficient in model 1 for caregivers' negative emotional expressiveness was significant, indicating that caregivers' reports of higher frequency of negative expressiveness are predictive of teachers' reports of higher levels of child internalizing behavior. Results also showed a significant non-linear relationship between negative caregiver emotional expressiveness and child internalizing behavior. When a loess curve was fitted to the data to represent the potential non-linear relationship between child internalizing behavior and caregiver negative expressiveness, a pattern inconsistent with the original hypothesis was unveiled. Specifically, the relationship appeared to be asymptotic, where the association was driven by low to moderate scores of caregiver negative emotional expressiveness (approximately 1–4.5 on the SEFQ scale), and movement from moderate to high scores (4.5–9) was not associated with increases in internalizing problems (see Figure 1). In addition to the findings on caregiver negative emotional expressiveness, higher levels of child emotion regulation were found to significantly negatively predict internalizing behavior.

Although model 2, which predicted teachers' reports of children's externalizing behavior from positive and negative caregiver emotional expressiveness and child emotion regulation, was not statistically significant overall, the coefficient for positive caregiver emotional expressiveness was found to be significant. Specifically, higher frequency of positive caregiver expressiveness was predictive of lower levels of teacher-reported child externalizing behaviors. In predicting children's externalizing behavior problems, neither the linear nor the non-linear term for negative caregiver emotional expressiveness was significant, nor was the term for child emotion regulation.

Child Emotion Regulation as a Partial Mediator

Methodology from Baron and Kenny (1986) was used to examine the mediating effects of child emotion regulation. In addition to regressing child behavioral outcomes on positive and negative caregiver expressiveness and child emotion regulation (see above), three additional models were used to test for mediation, all of which adjusted for child race/ethnicity and gender, and household income. Two models were used to regress the two child behavioral outcomes on positive and negative caregiver expressiveness. In the third model, the hypothesized mediator—child emotion regulation—was regressed on positive and negative caregiver emotional expressiveness. Results of regression analyses revealed no significant relationships between caregivers' self-reports of their own expressiveness and children's emotion regulation. As a result, child emotion regulation was not considered to mediate the relationship between caregiver emotional expressiveness and child behavior in the present sample.

Child Gender and Race/Ethnicity as Moderators

A fourth step was added to the previous regression models to test the role of child race/ethnicity and gender as moderators of the relationships between predictor variables and children's behavior. The role of household income was not assessed, as there was insufficient variance in income levels within the present sample due to all children's qualification for Head Start enrollment. The full sample was used to test the role of gender as a moderator, whereas a reduced sample that excluded non-Hispanic White children was

used to test for racial/ethnic differences across children of African-American vs. Hispanic caregivers. The fourth step of the regression included all variables from step 3, as well as all interactions between predictor variables (i.e., positive caregiver expressiveness, negative caregiver expressiveness, and child emotion regulation) and race/ethnicity, and between predictor variables and gender. Because race/ethnicity and gender were not correlated, all interactions were entered simultaneously to minimize the total number of analyses conducted.

Results indicated that gender played a significant moderating role in the relationship between caregivers' positive emotional expressiveness and children's externalizing behavior problems, $\beta = .28$, $p = .02$ (see Figure 2). Interestingly, girls displayed the expected pattern of lower levels of externalizing behaviors at high vs. low frequency of caregiver positive expressiveness, with a simple slope of -1.81 , $t(93) = -3.06$, $p < .01$. Boys, however, showed a non-significant simple slope. No other significant interactions were found.

Discussion

The present study provides a detailed 'snapshot' of emotion socialization processes in the home, Head Start children's directly assessed quality of emotion regulation, and their manifestation of behavioral problems at school. Caregivers in the present sample reported expressing positive emotions with high frequency in the context of daily life with their families. Consistent with the findings in prior studies of more economically advantaged White and African-American samples, caregivers also reported expressing negative emotions, but at lower frequency than positive expressiveness (Eisenberg et al., 2001; Halberstadt et al., 1995; A. G. Halberstadt, personal communication, November 24, 2009). Correspondingly, children in the present sample were able, on the whole, to maintain emotional self-control during an extensive battery of challenging tasks, with a relatively low proportion of children showing extensive signs of defiance, impatience, or distress. At the same time, teachers' reports of children's internalizing and externalizing behavior problems indicate some cause for concern. Consistent with past research in Head Start populations (Qi & Kaiser, 2003), although most children were reported to show very few behavior problem symptoms, a moderate proportion of children scored in the elevated range, especially for externalizing problems. These descriptive statistics address recent calls in the field to extend basic research on children's emotional development to low-income and racially diverse samples (Garner & Spears, 2000; Garner et al., 1994; Raver, 2004), and highlight similarities between the present sample and less economically vulnerable families.

In the present study, we examined whether models of caregiver socialization and child emotion regulation and behavior that have been primarily tested with more affluent, White samples are empirically accurate for low-income families of color. Surprisingly, we did not find evidence in this sample to support the hypothesis that the quality of children's emotion regulation *mediates* the relationship between their caregivers' emotional expressiveness and their behavioral outcomes. One potential reason why we failed to detect an association between emotion socialization practices and children's emotion regulation is that we limited our attention to caregivers' emotional expressiveness as a single indicator of emotion socialization. Importantly, caregivers also use other, more direct socialization strategies such

as emotion labeling or coaching, which are not necessarily related to their expressiveness but have been shown to contribute to children's acquisition of effective emotion regulation skills (Eisenberg et al., 1998; Halberstadt & Eaton, 2002; Ramsden & Hubbard, 2002). Although our findings did not reveal evidence for mediation, results suggested caregiver expressiveness and child emotion regulation as *additive* predictors of child behavior problems that were consistent in some ways, and inconsistent in other ways, with past research (Cole et al., 1996; Eisenberg et al., 2001).

Predicting Children's Internalizing Behavior

In keeping with prior evidence, the children in our sample who were reported to exhibit fewer symptoms of depression and withdrawal by their Head Start teachers had caregivers who independently reported expressing anger, sadness, and disappointment less frequently. In short, caregivers who reported being able to keep negative emotions 'in check' at home had children who were less prone to showing internalizing behavior problems in classroom contexts. In addition, our results suggest that children who exhibited higher levels of emotion regulation during standardized behavioral assessments also tended to have lower internalizing symptoms, as rated by their teachers. These findings held true across children of both African-American and Hispanic caregivers, with no evidence of statistically significant moderation by race/ethnicity or gender. Our finding of *the additive* roles of caregiver emotional expressiveness and child emotion regulation are congruent with previously reported findings from less economically at-risk samples (Cole et al., 1996; Gross & Muñoz, 1995). By showing that both caregivers' expressiveness *and* children's emotional competence contributes to less anxiety, depression, or withdrawal in preschoolers, these findings underscore the importance of examining both child- and family-level factors when considering pathways toward children's behavioral competence vs. difficulty in classroom contexts.

Predicting Children's Externalizing Behavior

In predicting children's externalizing behavior, our results suggest that caregivers' self-reports of expressiveness of positive emotions such as happiness were significantly associated with lower levels of behaviors such as aggression, anger, and defiance for children in the classroom setting. In keeping with previous research, our findings suggest that when low-income caregivers are frequently expressive of positive emotions in the home, they may be supporting their children's social competence in ways that help them to successfully navigate relationships with teachers and peers in classroom settings. Importantly, we found that this inverse association between caregivers' positive expressiveness and children's externalizing behavior problems appears to be statistically detectable only for girls in this sample, and not for boys (see Figure 2). The finding that gender moderated the relationship between caregiver socialization and child behavior is consistent with past research (Garner, Robertson, & Smith, 1997). This association may have been more easily detected for girls in our sample given that caregivers and teachers have been found to hold stronger sanctions against the expression of aggression for girls than for boys (Crick, 1997). For this reason, more aggressive girls in our sample may have elicited less positivity from their caregivers than boys. Importantly, past research has also found that mothers and fathers report using different emotion socialization practices, and that their use

of particular strategies often varies based on the gender of the child (Garner et al., 1997). Given that our sample consists of primarily female caregivers, it is possible that the inclusion of a larger proportion of male caregivers may have resulted in different or non-significant patterns of child gender-based moderation.

Although caregivers' expressions of positive emotions were associated with children's externalizing behavior in the expected direction, we were surprised by null results when we considered caregivers' expressions of negative emotions and children's regulatory quality as predictors of their externalizing behaviors. Importantly, we may have faced truncated variance in both caregivers' reports of negative emotion and children's emotion regulation in our study, which may have limited our ability to detect statistical significance. For example, the PSRA tasks may have been less sensitive in detecting individual differences in the particular emotion regulation skills that are important for inhibiting displays of anger and aggression. In addition, previous theory and research highlight ways that emotion regulation is context dependent, and the PSRA may have tapped children's regulatory competence with adults but may be less predictive of their ability to limit and control behavior when facing conflict or challenge in the heat of the moment with peers (Davidson, Jackson, & Kalin, 2000; Thompson, 1994). Future research with these and other measures will help to refine our understanding of the specificity of pathways from low-income, ethnic minority children's regulatory skill to their manifestation of externalizing behavioral difficulty in classroom settings.

Predicting Children's Behavior Non-linearly

Results of this study also highlight ways that caregivers' expressions of negative emotions and their children's behavioral difficulty may vary non-linearly depending on the frequency with which negative emotion is expressed (see Figure 1). Past theory and research examining peer competence have suggested that caregivers' expression of low levels of negativity may be beneficial to children, as such modeling provides them with coping strategies that they can use when they experience their own negative emotions (Halberstadt et al., 1999; Wong, Diener, & Isabella, 2008). Such a hypothesis was not supported in the present study. Instead, results reveal that caregivers who expressed low frequency of negativity tended to have children with fewer internalizing problems than moderately negative caregivers, but that caregivers who expressed negativity with great frequency tended to have children with similarly high levels of internalizing symptoms as caregivers who expressed negativity with moderate frequency. This suggests that when holding constant demographic characteristics and caregivers' frequency of expressing positive emotions, children whose caregivers express negative emotion with anywhere between moderate to high frequency tend to show similar levels of internalizing behavior problems.

This finding could have implications for socioemotional interventions targeting family emotional processes, suggesting that the goal of such programs should be to reduce negativity in all caregivers and not just those who are most often emotionally negative (see Izard et al., 2008). It also suggests that in order for an intervention to be effective, it must help highly negative caregivers to reduce negativity to particularly low frequency. In other words, small, incremental changes at the high end of the spectrum may not be as effective as

previously hoped. Importantly, additional research is needed to understand whether this non-linear finding holds true for different socioemotional outcomes and/or in different populations of children.

Implications for Predicting Child Behavior Problems

In general, our findings underscore the complexity inherent in children's emotion socialization and regulation across home and classroom settings and the need to consider multiple contexts in identifying risk and protective factors that contribute toward children's socioemotional development. Taken together, this study highlights the importance of considering both positive and negative emotional expressiveness among Head Start families when predicting children's behavior outcomes in the classroom. Specifically, this research suggests that for Head Start children in particular, caregivers' expression of negative emotion and children's own emotion regulation may be more tightly related to their internalizing behaviors, whereas caregivers' frequency of positive expressiveness may be more related to their externalizing behaviors. These findings stand in contrast to past research from middle-income, White samples, where caregivers' frequency of positive and negative expressiveness and children's emotion regulation were found to be predictive of both internalizing and externalizing outcomes (Eisenberg et al., 2001). Importantly, although some evidence was found for moderation of the relationships between caregiver emotional expressiveness and child behavior problems by child gender, relationships did not significantly differ by child race/ethnicity within this sample. Further research is needed to explore other potential moderators both within Head Start settings and across low- and middle-income contexts.

Our results also highlight the need for the development of measures to capture richer subcomponents of caregiver emotional expressiveness, such as the intensity of emotion, the type of negative expressiveness (dominant vs. submissive), how often the expressions are directed at the child, and the situational appropriateness of the particular expression. More complex models that simultaneously address multiple domains of emotion are also needed to explore how different profiles of expressiveness (e.g., high positive and high negative vs. low positive and low negative) contribute toward children's outcomes. An understanding of multiple dimensions of caregiver emotional expressiveness would aid in creating a more integrated perspective on children's behavioral development and may help to account for the variation in socialization patterns seen across contexts.

In addition to building on the field's theoretical understanding of models of socialization in low-income, ethnic minority contexts, the results of this study also have important implications for real-world intervention. Firstly, descriptive results suggest the continued need for programs that target the reduction of internalizing and externalizing behavior problems in Head Start children. Additionally, the fact that both caregiver expressiveness and child emotion regulation were additively related to children's behavioral competence at school reinforces the need for interventions to target both family- and child-level processes. It also suggests that interventions implemented in multiple settings (i.e., the family and preschool environments) may be effective in eliciting results across contexts (see Brotman et al., 2009; Izard et al., 2008; Raver et al., 2011, for a range of intervention models). Finally,

the fact that the inverse relationship between positive expressiveness and externalizing behaviors held most strongly for girls suggests the need for tailored interventions that support processes in specific demographic subgroups in order to increase both efficacy and cost-effectiveness.

Limitations and Future Directions

Although this study serves as an important first step in illuminating the processes underlying socioemotional development and emotion socialization among economically vulnerable Head Start children, there are several factors that limit the conclusions we can draw from these findings. Firstly, because of its cross-sectional nature, this study does not allow us to draw causal conclusions. As with most studies of family emotional processes, there is a large potential for bidirectionality, whereby child-level behaviors are also likely to influence caregiver responses. Secondly, our power to detect statistically significant findings may have been limited by our relatively small sample size. Thirdly, although we used measures that have been previously validated with samples of low-income, ethnic minority participants, we did not collect information on the same variable from multiple sources, and our use of shortened measures made comparisons of our findings with those from other studies difficult. Future studies should supplement self-report of emotional expressiveness with naturalistic observer ratings of caregivers' day-to-day social interactions. To gather a more holistic perspective of socialization practices, researchers should also aim to more clearly and accurately capture other components of caregiver emotional expressiveness, including intensity, duration, and situational appropriateness.

Finally, in this study we made the important decision to include all children in the sample regardless of their race/ethnicity, and all caregivers regardless of their gender or relationship to the child. In doing so, we greatly improved the representativeness of our sample and the generalizability of our findings to the particular Head Start context from which the sample was drawn. At the same time, these choices have restricted our ability to generalize our findings beyond this particular setting. The inclusion of biracial and non-Hispanic White children in the majority of analyses limits our ability to draw specific inferences about any one racial or ethnic group. Although we found no evidence for differences in patterns across families with African-American vs. Hispanic caregivers, the inclusion of biracial children in these analyses may restrict our ability to generalize these findings. Additionally, our sample included a large proportion (90 out of 97) of biological mothers, and only a small proportion of fathers and non-parental caregivers. Despite the fact that we did not see any statistically significant differences in emotional expressiveness across these groups, it is possible that simple bivariate tests in small subsamples may not have been sufficient to uncover potential heterogeneity. Additional research within and across racial/ethnic groups and types of caregivers is needed to understand the specific socialization practices at work within these populations.

Conclusions

With these limitations in mind, the present study serves as an important step in understanding the processes underlying children's emotion socialization in diverse contexts.

The results of this study suggest that caregiver emotional expressiveness and child emotion regulation are important predictors of the behavioral outcomes of low-income, ethnic minority children. At the same time, the specific relationships found in the present study differ from those in previous research with less economically vulnerable, White samples. These differences highlight the importance of establishing model equivalence across contexts in order to best inform the creation of socioemotional interventions targeting family processes. Future research must explore additional child-, family-, and macro-level factors that may help to form pathways toward children's emotional and behavioral competence.

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Figure 1.
Loess Curve Representing the Non-linear Relationship between Caregiver Negative Emotional Expressiveness and Child Internalizing Behavior Problems.

Figure 2.
Moderating Effect of Child Gender on the Relationship between Caregiver Positive Emotional Expressiveness and Child Externalizing Behavior Problems.
Note: 'high' expressiveness = mean + 1SD; 'low' expressiveness = mean - 1SD.

Table 1.

Bivariate Correlations between Caregivers' Emotional Expressiveness, Children's Emotion Regulation, and Children's Behavior Problems (N = 97)

	1.	2.	3.	4.	5.
Caregiver emotional expressiveness					
1. Positive					
2. Negative	.09				
3. Negative squared	.07	.60**			
4. Child emotion regulation Child behavior problems	.01	.18*	.03		
5. Internalizing	-.07	.25**	-.02	-.26**	
6. Externalizing	-.20*	-.06	-.10	-.03	.31**

Notes: Correlations are one-tailed; all variables are mean centered.

* $p < .05$,

** $p < .01$.

Table 2.

Sample Descriptive Statistics

	Full sample (N = 97)	
	<i>M (SD)</i>	Range
Caregiver emotional expressiveness		
Positive	7.08 (1.37)	3.29–9.00
Negative	2.67 (1.22)	1.00–7.86
Child emotion regulation	–.01 (.94)	–3.25–.93
Child behavior		
Internalizing	2.58 (2.34)	.00–11.00
Externalizing	6.84 (6.62)	.00–31.00

Table 3.

Regression Analyses Predicting Child Internalizing and Externalizing Behavior Problems from Caregiver Emotional Expressiveness and Child Emotion Regulation (N = 97)

	Model 1: internalizing						Model 2: externalizing					
	Step 1			Step 2**			Step 3**			Step 1		
	β	B	SE	β	B	SE	β	B	SE	β	B	SE
Child gender (1 = boy)	-.09	-.45	.12	-.12	-.57	.13	-.13	-.61	.10	.13	1.69	.12
		.48			.44			.43			1.39	
Child race (1 = African-American)	.22*	1.03*	.22*	.22*	1.03*	.18	.18	.83	.02	.22	.86	.05
		.47			.45			.45		1.38	1.42	
Household income-to-needs	.00	.00	.03	.13	.13	.02	.02	.08	.06	.77	.96	.08
		.42			.39			.38		1.24	1.24	
Caregiver positive emotional expressiveness			-.12	-.20	-.11	-.18	-.18	.16		-.23*	-.109*	-.108*
				.16				.16		.51		.51
Caregiver negative emotional expressiveness			.29**	.56**	.45**	.87**	.87**	-.05	-.27	.00	.00	.00
				.19			.23		.58		.74	
Child emotion regulation			-.34**	-.84**	-.35**	-.88**	-.88**	-.02	-.13	-.02	-.17	-.17
				.24			.23		.74		.74	
Caregiver negative emotional Expressiveness (squared)					-.26*		-.18*			-.08		-.16
R^2	.059		.228		.268		.071					

Notes:

* $p < .05$,

** $p < .01$.