Emotion regulation, language ability, and the stability of preschool children's peer play behavior.

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Abstract:

Research Findings: This study examined the stability of preschoolers' peer play behavior across the school year and the relations between emotion regulation, receptive vocabulary, and the trajectory of social competence deficits. Participants were 331 preschool children attending Head Start; they were primarily African American and from a low-SES background. Peer play behavior was moderately stable from fall to spring. Analyses revealed that emotional lability in the fall was associated with consistently maladaptive and declining social competence. Furthermore, children who exhibited stable maladaptive behavior had lower receptive language skills and emotion regulation in the fall than children who exhibited consistently adaptive behavior. Preschool children with comorbid externalizing and internalizing behaviors during peer play were at the greatest risk for consistent peer play difficulties or declining social competence over the course of the year compared to their peers. Practice: The present study informs practices for identifying at-risk preschoolers shortly after entry into an early education experience. Moreover, the findings suggest that without effective interventions, those at-risk children are likely to exhibit consistently poor social competence over time. Implications for the use of early intervention and prevention targeting specific behavioral and peer problems are discussed.

Keywords: emotion | psychology | emotion regulation | language ability | child development | early education | preschool children | child play behavior | child socialization

Article:

Introduction

Preschool is a critical time in which young children can develop the requisite skills for later school success. Recently, there has been a particular emphasis on the importance of young children's social competence as an integral aspect of school readiness (Denham, 2006; Ladd, Herald, & Kochel, 2006; Mashburn & Pianta, 2006; Snow, 2006). Social competence in

preschool is largely manifested and developed in the context of peer play. Young children must successfully navigate their way through a number of social tasks that are integrated into the initiation and maintenance of peer play (Dodge, Pettit, McClaskey, & Brown, 1986; Guralnick, 1993). Such tasks include engaging in and initiating activities with peers, responding appropriately to social cues, and coping with social conflict (Guralnick, 1993; Ladd et al., 2006). The preschool environment provides young children with many opportunities to interact with their peers and develop positive social skills. Raver and Zigler (1997) suggested that early intervention programs may serve as a context in which children can develop and hone prosocial behaviors. Although their article spurred research into children's social competence, there is still limited research investigating how social competence changes in preschool, particularly among children with low-SES backgrounds (Mendez, Fantuzzo, & Cicchetti, 2002).

Positive peer relationships in early childhood are not only associated with peer acceptance (i.e., Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998), but also with positive learning behaviors, including competence motivation, attention, and persistence (Coolahan, Fantuzzo, Mendez, & McDermott, 2000). Conversely, negative peer relationships in early childhood have been associated with lower peer acceptance and a host of problematic classroom behaviors, such as hyperactivity and inattention (Coolahan et al., 2000; Fantuzzo et al., 1998). Consistently elevated levels of aggression, particularly physical aggression, have been associated with multiple negative outcomes as children grow older, including poor social adjustment and academic functioning, dropping out of school, criminality, and psychopathology (Brame, Nagin, & Tremblay, 2001; Campbell et al., 2006; Huesmann, Dubow, & Boxer, 2009; Parker & Asher, 1987). Although some have suggested that childhood shyness/withdrawal is not as predictive of future maladjustment as externalizing behavior problems (e.g., Parker & Asher, 1987), studies have found an association between withdrawal in early childhood and internalizing problems in middle childhood (Rubin, Hymel, & Mills, 1989) and between behavioral inhibition in early childhood and the development of anxiety disorders in later childhood and early adolescence (Rosenbaum, Biederman, Hirshfeld, Bolduc, & Chaloff, 1991; Schwartz, Snidman, & Kagan, 1999).

A limited number of studies have thoroughly explored the stability of social competence and behavior problems in preschool children, particularly among ethnic minority samples from low-SES backgrounds. Although numerous investigations have contributed to the understanding of pathways of social competence and behavior problems throughout childhood, studies have frequently examined primarily Caucasian, middle-class samples (e.g., Eisenberg et al., 1997, 2005); have examined a particular facet of social competence, such as externalizing behaviors (e.g., Ackerman, Brown, & Izard, 2003; Campbell et al., 2006), or a lack thereof; and/or have focused on older children or broader periods of time than just the preschool years (e.g., Brame et al., 2001; Campbell et al., 2006; NICHD Early Child Care Research Network, 2004). Thus, further studies of ethnic minority preschool children are warranted, as they are critical in helping

to differentiate between developmentally appropriate behavior and behavior that places children at risk for consistent social and academic problems.

Mendez, McDermott, and Fantuzzo (2002) found that younger preschoolers exhibited greater disruptive and disconnected peer play behaviors compared to older preschoolers. Similarly, the largest nationally representative study of Head Start children to date, the FACES study, revealed that children showed gains in cooperative classroom behaviors from fall to spring (ACF, 2006). Moreover, children with the greatest levels of behavior problems in the fall evidenced significant improvements across a range of behavior problems from fall to spring. Another study using a nationally representative sample identified a group of children who showed a sharp decline in aggression between 36 and 54 months of age and subsequently demonstrated low levels of aggression through the third grade (NICHD Early Child Care Research Network, 2004). Thus, research suggests that a significant proportion of young children demonstrate improving social competence and diminishing behavior problems over time within the context of the preschool environment.

However, it is evident that not all preschool children experience such a positive trajectory. A number of longitudinal studies have suggested that some children exhibit aggressive behaviors consistently over time (Campbell, 1995; NICHD Early Child Care Research Network, 2004; Parker & Asher, 1987). Research also suggests that a subset of children is consistently withdrawn across situations and time (Rubin, Burgess, & Hastings, 2002; Rubin, Hastings, Stewart, Henderson, & Chen, 1997). Few studies, however, have directly examined which childhood characteristics are related to the maintenance or exacerbation of maladaptive peer interaction styles in preschool. For example, a lack of cognitive and emotional skills may contribute to increasingly negative peer interactions, whereas the presence of such skills may be drawn upon to help navigate social challenges (Garcia-Coll et al., 1996). Improved understanding of the role of these constructs in the trajectory of social competence and social competence deficits could contribute to the identification of those children most at risk for future problems and provide important information regarding potential targets for intervention.

It is evident that children's ability to regulate their emotions plays an integral role in the development of social competence. Indicators of emotion regulation and dysregulation have been associated with children's social competence, behavior problems, and social status both concurrently and predictively (Denham et al., 2003; Eisenberg et al., 1993, 1996, 2005; Maszk, Eisenberg, & Guthrie, 1999). Positive peer play behaviors require, in part, appropriate affect recognition, expression, and control (Denham et al., 2003; Eisenberg et al., 2001; Guralnick, 1993; LaFreniere & Dumas, 1996). Inappropriate and dysregulated expression of emotion may contribute to negative peer interactions by disrupting ongoing activities and impeding conflict resolution.

In order to explore these relations, Eisenberg and colleagues (1997) compared groups of children evidencing different trajectories of social competence between two time points, starting at the

ages of 6 to 8 and then 2 years later. Participants were predominantly White and middle class. Destructive coping and negative emotionality at Time 1 were greater in groups of children evidencing consistently low or decreasing social competence in the school setting compared to consistently high, increasing, or consistently average groups. Likewise, the consistently low and decreasing groups evidenced significantly lower levels of regulation at Time 1 than the other groups. A subsequent study by Eisenberg and colleagues (2005) found that children who maintained a classification of externalizer over the 2 years received higher ratings of anger and sadness at Time 1 than those children who moved from externalizer to nondisordered status. Moreover, those children who moved from externalizer to nondisordered status received higher ratings of effortful control at Time 1 than either consistent externalizers or those children who moved from nondisordered to externalizer status. Similarly, children who moved from internalizer to nondisordered status received lower ratings of anger and sadness at Time 1 than those children who remained in the internalizing group. They also received lower ratings of anger at Time 1 than children who moved from nondisordered to internalizer status. Such methodology has yet to be utilized within a sample of low-income, ethnic minority preschool-age children. However, findings suggest that measures of emotion regulation and dysregulation may prove to be robust markers for identifying children at risk for stable deficits in social competence.

The trajectory of social competence and maladaptive behavior in young children is also influenced by cognitive and linguistic skills that allow for engagement and response to peers' actions (Howes & Matheson, 1992). It has been argued that language skills impact understanding, organizing, and enactment of social rules that are critical to effective emotion regulation and self-control strategies (Gallagher, 1999). A number of studies have shown that withdrawn children tend to perform more poorly on measures of verbal skills (Broberg, Hwang, Lamb, & Bookstein, 1990; Crozier & Perkins, 2002; Evans, 1996; Spere, Schmidt, Theall-Honey, & Martin-Chang, 2004). Using cluster analyses, Mendez, Fantuzzo, et al. (2002) identified two groups of children attending Head Start with externalizing behavior problems (Dysregulated and Inattentive-Active profiles) who had receptive language abilities well below those of their classmates.

In fact, research suggests that children with poor comprehension skills may be at risk for a particularly negative trajectory of social competence (Beitchman et al., 1996). Within a sample of speech/language–impaired children, investigators found a cluster of children with poor comprehension skills at age 5 who demonstrated a decrease in maternal ratings of social competence from age 5 to age 12.5 (Beitchman et al., 1996). This trajectory is in contrast to a high overall linguistic ability group that showed gains and a poor articulation group and low overall linguistic ability group that remained relatively stable over time. Moreover, the poor comprehension group demonstrated an increase in teacher-rated hyperactivity from age 5 to age 12.5, whereas the other groups showed a pattern of stable or decreasing hyperactivity over time. Deficits in language comprehension could lead to a lack of responsiveness to others' attempts at

initiating play, a poor understanding of others' requests and suggestions, and difficulty coordinating synchronous interactions. Findings are limited, however, given the particular sample included in the study.

AIMS AND HYPOTHESES OF THE PRESENT STUDY

Given the findings that consistently low social competence over time—whether disruptive or disconnected in nature—is associated with a host of negative outcomes, it is important to examine patterns of social competence in young children. Thus, one aim of the present study was to examine the stability of peer play behaviors over the course of one academic year of preschool. It was expected that most preschool children would exhibit consistently high levels of social competence from fall to spring and that a subset of children would demonstrate consistently maladaptive peer relations from fall to spring. It was also expected that some children with social competence deficits would evidence improvements over the course of the year. Moreover, it was hypothesized that high levels of initial aggression would be more predictive of stable deficits than would high levels of initial withdrawal. Presumably, high levels of comorbid behavior problems, including both externalizing and internalizing behaviors, would confer the greatest risk for stable maladaptive peer play behavior.

In order to examine which children are most at risk for stable behavioral difficulties, a second aim was to examine relations between emotion regulation, receptive language ability, and the trajectory of peer play behaviors. It was expected that low receptive language abilities and low emotion regulation in the beginning of the year would be associated with stable maladaptive peer play (i.e., aggression and/or withdrawal). Moreover, it was expected that children with diminishing maladaptive peer play over the course of the year would evidence greater language abilities and emotion regulation in the beginning of the year than children with consistently high levels of maladaptive peer play. Likewise, it was expected that children with increasing maladaptive peer play would evidence lower language abilities and poorer emotion regulation in the beginning of the year compared to children with consistently appropriate levels of social competence.

METHOD

Participants

Data were collected from two cohorts of children (N = 331) attending Head Start early intervention preschool programs. There were four participating Head Start centers consisting of 38 classrooms. The majority of children were African American (83.1%), with the remainder of the sample Hispanic (6.5%), biracial/multiracial (5.1%), Caucasian (4.5%), or Asian American and other (0.8%). There were similar percentages of boys (49.5%) and girls (50.5%). The mean age of the children was 48.5 months (SD = 7.16, range = 33–70 months). Children's demographic variables did not significantly differ by Head Start center.

Of caregivers who provided information regarding their educational status (n = 242), 42.1% had graduated from high school or had a GED, 30.2% had some college education or an associate's degree, 13.6% had not completed high school, 9.1% had a bachelor's degree, 4.1% had a vocational or technical degree, and the remaining 0.8% had completed some graduate school or had a graduate degree. Caregivers' reported employment status was as follows (n = 226): 45.6% full-time employment, 20.8% part-time employment, 9.7% looking for work, and 20.8% not employed outside the home. The marital status of the respondents (n = 245) was as follows: 60.4% never married, 22.0% married, 8.2% separated, 8.2% divorced, and 1.2% widowed. The mean annual income of respondents was $14,186 (SD = $12,087). The median income of respondents (n = 160) was $12,500. Approximately one fifth of the sample (n = 58) who consented to the study did not answer any questions regarding caregiver income, education, marital status, or employment, and additional respondents only provided information for some questions. Whether or not responses were omitted on the demographic survey was not significantly associated with other study variables.

Procedure

Parents completed informed consent during parent orientation meetings at the Head Start center or via forms sent home with children. Parents were interviewed by trained assessors at the beginning and end of the year. For the purposes of the current study, available demographic information gathered from parents in the fall was used to provide a basic description of the participating families. Teachers completed ratings of children's behavior in the fall and spring. Fall ratings were collected after 1 month of schooling, ensuring that teachers were exposed to the children for at least 1 month prior to completing ratings. Teacher ratings of emotion regulation were collected in the fall, and teacher ratings of peer play were collected in the fall and spring. Trained assessors administered tests of receptive vocabulary to the children in the fall. All data at each time point were collected within the same 6-week period of time for all participants.

Measures

Peer play

The teacher version of the Penn Interactive Peer Play Scale (PIPPS; Coolahan et al., 2000) is a 32-item teacher rating scale of children's play behavior at school. Items are rated on a 4-point Likert scale (1 = never, 2 = seldom, 3 = often, 4 = always). Factor analyses yielded three factors: Play Interaction, Play Disruption, and Play Disconnection. Play Interaction reflects children's positive and prosocial play behaviors (i.e., social competence). Play Disruption reflects children's impulsive and aggressive behaviors that interrupt play. Play Disconnection reflects children's withdrawn and avoidant behaviors. In the current sample, the three factors were reliable, with Cronbach's alphas of .88, .90, and .89, respectively. Concurrent validity of the teacher version of the PIPPS has been established with African American children in Head Start (Coolahan et al., 2000; Fantuzzo et al., 1998).

Receptive vocabulary

The Peabody Picture Vocabulary Test–III (PPVT; Dunn, Dunn, & Dunn, 1997) is a 204-item test that assesses children's receptive language development. Children are asked to indicate which of four pictures best shows the meaning of a word provided by the assessor. The PPVT is intended for use with individuals 2.5 years of age through adulthood. Internal consistency is strong, with Cronbach's alphas ranging from .92 to .98. Test–retest reliability for a 1-month period is also strong, ranging from .91 to .94. Construct and criterion-related validity have been demonstrated through correlations with the Wechsler Intelligence scores ranging from .82 to .92. The present sample demonstrated below-average performance on the PPVT in the fall (M = 79.86, SD = 12.17).

Emotion regulation

The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) is a teacher-rated measure assessing children's ability to control their emotions in the classroom. The ERC contains 24 items that are rated on a 4-point Likert scale (1 = rarely/never, 2 = sometimes, 3 = often, 4 = almost always). Factor analysis yielded two factors: Lability/Negativity and Emotion Regulation. Lability/Negativity reflects emotion dysregulation, such as children's mood swings and negative affect. Items on this scale include “exhibits wide mood swings” and “is easily frustrated.” Scores on this scale range from 14 to 56. Emotion Regulation reflects children's ability to react appropriately in situations and their emotional self-awareness. Items on this scale include “responds with positive emotions to neutral or friendly overtures by peers” and “can say when s/he is feeling sad, angry or mad, fearful or afraid.” Scores on this scale range from 8 to 32. In the full sample of the present study, the two factors were reliable, with Cronbach's alphas of .88 and .79, respectively. Mean Lability/Negativity in the present sample was 24.47 (SD = 7.25). Mean Emotion Regulation was 23.86 (SD = 4.57).

Data Analyses

First, bivariate correlations were used to examine concurrent relations between peer play behavior, emotion regulation, lability, and receptive vocabulary. Next, bivariate correlations were used to examine the stability of children's peer play competence over the course of the school year. Stability was further examined with repeated measures t tests that captured the change in mean PIPPS scores.

To provide a more nuanced examination of stability, we categorized children's peer play as Nondisordered, Disruptive, Disconnected, or Comorbid in both the fall and spring. Children were categorized as Nondisordered if they received t scores on PIPPS Play Disruption and Play Disconnection less than one standard deviation above the mean. Children were categorized as Disruptive if they received t scores on Play Disruption greater than or equal to one standard deviation above the mean and scores on Play Disconnection less than one standard deviation above the mean. Children were categorized as Disconnected if they received t scores on Play

Disconnection greater than or equal to one standard deviation above the mean and scores on Play Disruption less than one standard deviation above the mean. Finally, children were categorized as Comorbid if they received t scores on Play Disruption and Play Disconnection greater than or equal to one standard deviation above the mean.

Next, logistic regression was used to determine the contribution of fall group classification to peer play competence in the spring (i.e., Nondisordered vs. Disordered). Disordered status included children classified as Disruptive, Disconnected, or Comorbid in the spring. Age and gender were also entered into the regression analysis. All predictors were entered into a single model; sequential analyses were not performed given that there were no a priori hypotheses regarding the relative contribution of each variable to the prediction of the outcome variable.

Group membership was also examined across the academic year using fall and spring categorizations. Four trajectory groups were constructed: Stable Disordered, Disordered Improving, Stable Nondisordered, and Nondisordered Declining (see Figure 1). Children classified as Stable Disordered were categorized as Disruptive, Disconnected, or Comorbid in the fall and Disruptive, Disconnected, or Comorbid in the spring. Children classified as Disordered Improving were categorized as Disruptive, Disconnected, or Comorbid in the fall and Nondisordered in the spring. Children classified as Stable Nondisordered were categorized as Nondisordered in the fall and spring. Finally, children classified as Nondisordered Declining were categorized as Nondisordered in the fall and Disruptive, Disconnected, or Comorbid in the spring.

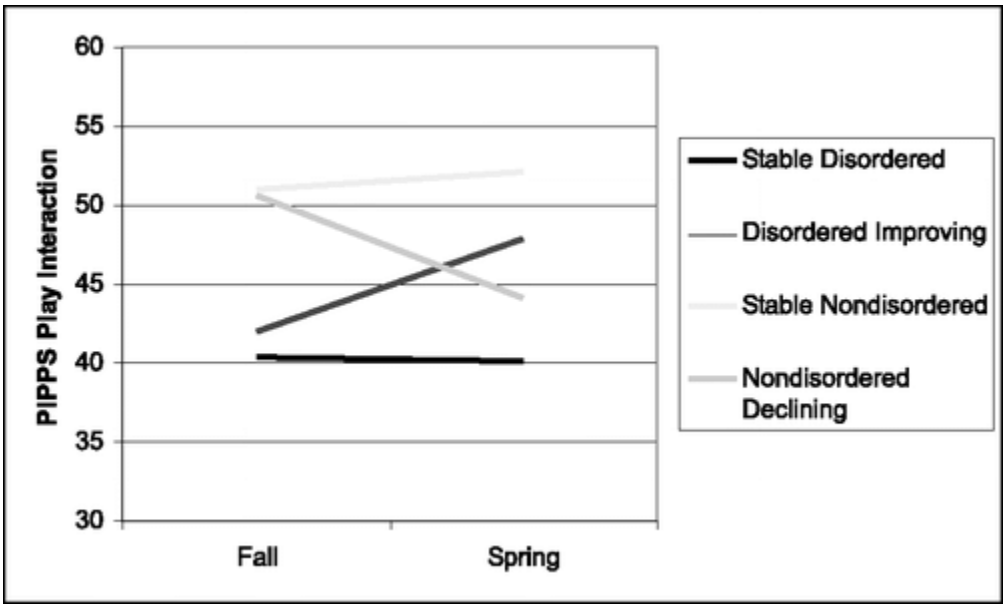

FIGURE 1 Penn Interactive Peer Play Scale (PIPPS) interactive play scores for the trajectory groups.

Analysis of variance (ANOVA) was used to examine differences between the four trajectory groups. Independent variables included trajectory group and age, which was dichotomized into younger (33–47 months old) and older (48–70 months old). Age was not used as a continuous covariate given violation of the assumption of homogeneity of regression coefficients, suggesting a possible interaction between trajectory group and age (Tabachnick & Fidell, 2007). Utilizing age as an independent variable allowed for the examination of this potential interaction. ANOVAs were run separately for the three dependent variables: receptive vocabulary, emotion regulation, and lability. Contrasts were used to test a priori hypotheses and to limit the number of analyses conducted. Three contrasts examined differences between trajectory groups: (a) Stable Disordered versus Disordered Improving, (b) Stable Nondisordered versus Nondisordered Declining, and (c) Stable Disordered versus Stable Nondisordered. Three additional contrasts examined the Group × Age interactions for the prior comparisons. A Bonferroni correction with p critical = .008 was used to control for an inflated Type I error rate.

RESULTS

Relations Among Study Constructs

Table 1 shows the bivariate correlations between fall scores on the PPVT and ERC and fall and spring scores on subscales of the PIPPS. Concurrent relations between the PPVT and ERC scores in the fall were examined first. PPVT scores in the fall had a small negative association with Lability and a small positive association with Emotion Regulation. Lability had a moderate negative association with Emotion Regulation.

Next, intercorrelations between fall PPVT and ERC scores and fall and spring PIPPS scores were examined. Fall PPVT had a moderate positive association with fall and spring Play Interaction. Fall PPVT had a small negative association with fall and spring Play Disconnection. There were no significant correlations between fall PPVT and Play Disruption. A moderately strong negative correlation was observed between fall Lability and fall and spring Play Interaction. Fall Lability had a strong positive correlation with fall Play Disruption and a moderate correlation with spring Play Disruption. Fall Lability also had a moderate positive association with fall and spring Play Disconnection. A strong positive correlation was observed between fall Emotion Regulation and fall Play Interaction, and a moderate correlation was observed between fall Emotion Regulation and spring Play Interaction. Fall Emotion Regulation had a small negative association with fall Play Disruption but was not significantly associated with spring Play Disruption. Finally, fall Emotion Regulation had a moderate negative association with fall Play Disconnection and a small negative association with spring Play Disconnection.

TABLE 1 Bivariate Intercorrelations

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. PPVT	—	−0.11*	0.16**	0.20**	−0.06	−0.12*	0.22**	−0.06	−0.11*
2. ERC Lability/ Negativity		—	−0.54**	−0.48**	0.65**	0.46**	−0.40**	0.45**	0.33**
3. ERC Emotion Regulation			—	0.67**	−0.30**	−0.55**	0.43**	−0.07	−0.27**
4. Fall Play Interaction				—	−0.35**	−0.44**	0.52**	−0.13*	−0.21**
5. Fall Play Disruption					—	0.52**	−0.28**	0.61**	0.34**
6. Fall Play Disconnection						—	−0.40**	0.38**	0.50**
7. Spring Play Interaction							—	−0.35**	−0.42**
8. Spring Play Disruption								—	0.54**
9. Spring Play Disconnection									—

Note. N = 331. PPVT = Peabody Picture Vocabulary Test–III; ERC = Emotion Regulation Checklist.

*p < .05.

**p < .01.

Stability of Peer Play Behavior

Examination of intercorrelations between fall and spring PIPPS subscale scores revealed that Play Interaction, Play Disruption, and Play Disconnection were relatively stable over the course of the school year. Specifically, fall Play Interaction scores were significantly related to spring Play Interaction scores ($r = .52$, $p < .01$), fall Play Disruption scores were significantly related to spring Play Disruption scores ($r = .61$, $p < .01$), and fall Play Disconnection scores were significantly related to spring Play Disconnection scores ($r = .50$, $p < .01$).

Results from repeated measures t tests demonstrated that there was a significant difference between mean fall and spring Play Disruption scores, $t(330) = 1.86$, $p < .01$. Mean teacher ratings of children's Play Disruption were significantly greater in the spring ($M = 47.70$, $SD = 14.08$) than in the fall ($M = 45.84$, $SD = 11.62$). Similarly, mean Play Disconnection scores were significantly greater in the spring ($M = 45.15$, $SD = 12.55$) than in the fall ($M = 43.34$, $SD = 14.07$), $t(330) = -2.45$, $p = .015$. There were no significant differences between mean fall and spring Play Interaction scores.

Stability of peer play behavior was further examined by comparing the percentages of children classified as Nondisordered, Disruptive, Disconnected, or Comorbid at both time points. There were more children categorized as Nondisordered in the spring (77.6%) than in the fall (73.1%). Fewer children were classified as Disruptive in the spring (7.9%) than in the fall (11.5%), and, likewise, fewer children were classified as Disconnected in the spring (6.6%) than in the fall (7.9%). The percentage of children classified as Comorbid remained relatively stable from fall (7.6%) to spring (7.9%).

Further examination of these classifications revealed that the majority of children (87.6%) who were categorized as Nondisordered in the fall were classified as Nondisordered in the spring. The remaining 12.4% of children who were classified as Nondisordered in the spring were classified as Disordered (i.e., Disruptive, Disconnected, or Comorbid) in the spring. Forty-seven percent of children who were classified as Disruptive in the fall maintained a Disordered classification in the spring. Only 34.6% of children who were classified as Disconnected in the fall maintained a Disordered classification in the spring, whereas 68% of children who were classified as Comorbid in the fall maintained a Disordered classification in the spring.

Next, the contribution of fall group classification to spring status was examined. Table 2 reports regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for odds ratios for each of the five predictors entered into the logistic regression equation. A test of the full model was significant, $\chi 2(5, N = 331) = 57.12$, $p < .001$, indicating that together the predictors reliably distinguished between children who were classified as Disordered and Nondisordered in the spring. Fall group classification was a significant predictor of spring group status, $\chi 2(3, N = 331) = 38.38$, $p < .001$. The odds of being classified as Nondisordered in the spring were 12.28 times better if a child was classified as Nondisordered in the fall than if he or she was classified

as Comorbid in the fall. The odds of being classified as Nondisordered in the spring were 4.19 times better if a child was classified as Disconnected in the fall than Comorbid in the fall. Although the odds of being classified as Nondisordered in the spring were 2.23 times better if a child was classified as Disruptive in the fall compared to Comorbid in the fall, this finding was not statistically significant. Age and gender were not significant predictors of spring group status.

Group Comparisons

Table 3 shows demographic information and mean scores for each of the four trajectory groups. The majority of children were categorized as Stable Nondisordered (64.0%). Similar percentages of children were categorized as Stable Disordered and Disordered Improving (13.3% and 13.6%, respectively), whereas fewer were categorized as Nondisordered Declining (9.1%).

An ANOVA revealed significant between-group differences for children's age in months, $F(3, 327) = 6.24$, $p < .001$. Follow-up tests using Tukey's HSD demonstrated that children in the Stable Nondisordered group were significantly older than children in the Stable Disordered group, $t(327) = 3.45$, $p = .004$; and significantly older than children in the Disordered Improving group, $t(327) = 3.14$, $p = .010$. There were no other significant differences between groups in age. Of note, there were no significant differences in age between the Stable Disordered group and the Disordered Improving group or between the Stable Nondisordered group and the Nondisordered Declining group. Chi-square analyses revealed that group membership also varied by gender, $\chi2(3) = 18.44$, $p < .001$. A higher proportion of girls were classified as Stable Nondisordered than as any of the remaining three groups. Follow-up tests revealed no significant differences between the Stable Disordered, Disordered Improving, and Nondisordered Declining groups.

TABLE 2 Summary of Logistic Regression Equation Predicting Spring Group Status

Predictor	***B***	***Wald***	***Odds Ratio***	***95% CI***	***p***
Age	0.03	1.88	1.03	0.99, 1.08	.17
Gender [a]	−0.49	2.60	0.61	0.34, 1.11	.11
Fall group 1 [b]	2.51	27.18	12.28	4.78, 31.53	<.001
Fall group 2 [c]	0.81	2.20	2.24	0.77, 6.50	.14

TABLE 2 Summary of Logistic Regression Equation Predicting Spring Group Status

Predictor	***B***	***Wald***	***Odds Ratio***	***95% CI***	***p***
Fall group 3 [d]	1.43	5.63	4.19	1.28, 13.70	.02

Note. N = 331. CI = confidence interval.

a Indicator group is male.

b Fall Nondisordered compared to fall Comorbid.

c Fall Disruptive compared to fall Comorbid.

d Fall Disconnected compared to fall Comorbid.

a Indicator group is male. bFall Nondisordered compared to fall Comorbid. cFall Disruptive compared to fall Comorbid. dFall Disconnected compared to fall Comorbid.

TABLE 3 Demographics and Mean Scores (*SD*) for Trajectory Groups

Group	***N***	***Male (%)***	***Age in Months***	***Fall Score***		
				PPVT	***Lability***	***Emotion Regulation***
Stable Nondisordered	212	41.0	49.7 (7.1)	80.8 (12.0)	21.5 (5.0)	25.2 (4.1)
Nondisordered Declining	30	56.7	48.1 (7.1)	81.7 (10.1)	24.8 (5.5)	24.2 (4.5)
Disordered Improving	45	64.4	46.1 (7.4)	78.8 (11.7)	29.5 (6.6)	20.6 (4.8)
Stable Disordered	44	70.5	45.7 (6.0)	75.1 (13.8)	33.6 (7.8)	20.3 (2.8)

Note. PPVT = Peabody Picture Vocabulary Test–III.

In order to examine group differences in fall PPVT and ERC scores, a series of contrasts were conducted using ANOVA. There were no significant differences between the Stable Disordered and Disordered Improving groups in fall PPVT scores or fall Emotion Regulation scores. However, analyses demonstrated that the Stable Disordered group had significantly greater fall Lability scores than the Disordered Improving group, $t(80.51) = -2.88$, $p = .005$. Of note, there were no significant differences in fall PIPPS Play Disruption or fall PIPPS Play Disconnection scores between the two groups.

The Nondisordered Declining group had significantly greater fall Lability scores than the Stable Nondisordered group, $t(31.28) = -2.90$, $p = .007$. The Nondisordered Declining group also had significantly greater fall PIPPS Play Disruption scores than the Stable Nondisordered group, $t(38.91) = 3.94$, $p < .001$; and significantly greater PIPPS Play Disconnection scores than the Stable Nondisordered group, $t(52.66) = 3.57$, $p = .001$.

As expected, the Stable Disordered group had significantly lower PPVT scores than the Stable Nondisordered group, $t(323) = 2.88$, $p = .004$. There was some support for a possible interaction between age and trajectory group, although this interaction was not statistically significant when we used the conservative Bonferroni correction, $t(323) = -2.62$, $p = .009$. Figure 2 shows that mean PPVT scores were similar for younger children in the Stable Nondisordered group and Stable Disordered group but divergent for older children in the two groups. Contrasts also revealed that, as expected, Emotion Regulation was significantly greater in the Stable Nondisordered group than the Stable Disordered group, $t(71.11) = 9.02$, $p < .001$; and that Lability was significantly lower in the Stable Nondisordered group than the Stable Disordered group, $t(51.82) = -10.53$, $p < .001$.

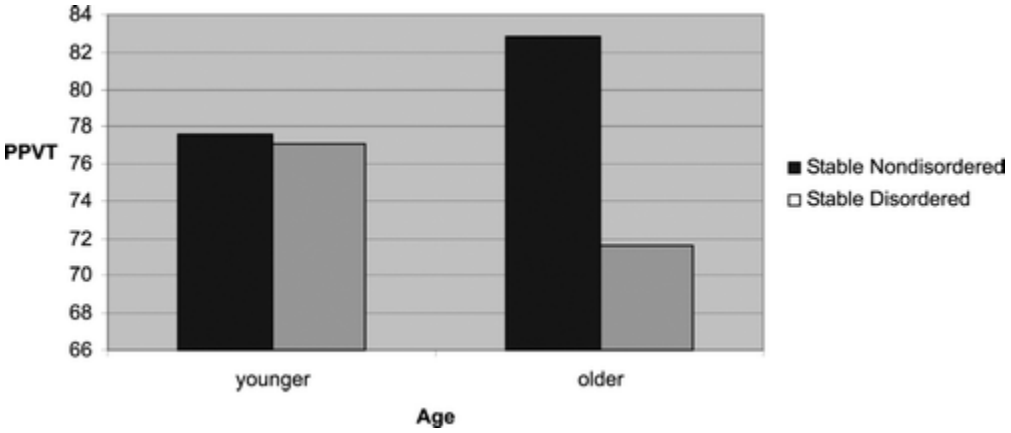

FIGURE 2 Interaction between age and trajectory group on receptive vocabulary. PPVT = Peabody Picture Vocabulary Test–III.

DISCUSSION.

The present study investigated the stability of preschool children's peer play behaviors across the school year and the relations between child characteristics (i.e., receptive vocabulary and emotion regulation) and the trajectory of peer play. Peer play behaviors were moderately stable, with the majority of children maintaining similar behaviors from fall to spring. However, changes in maladaptive peer play behavior were associated with child characteristics in the fall, particularly emotional lability.

Although examination of mean change in scores for peer play disruption and disconnection revealed that children in Head Start evidenced statistically significant increases in these behaviors over the course of the year, the magnitude of change was most likely not clinically significant. The utilization of categorical classifications based on PIPPS scores demonstrated that, in fact, more children were considered socially competent in the spring than in the fall. In the current sample, approximately 27% of children in the fall and 22% of children in the spring were categorized as exhibiting behavior problems. These findings are consistent with previous reports of rates of behavior problems in children from lower SES backgrounds (Qi & Kaiser, 2003). Moreover, they speak to the stability of rates of problem behaviors in preschool children from lower SES backgrounds.

It is interesting that the majority of children in the present study who were classified in the fall as significantly disruptive or disconnected in their peer play interactions were considered by teachers to be nondisordered relative to their peers in the spring (i.e., less than one standard deviation above the mean score on Disruption and Disconnection subscales of the PIPPS, respectively). Thus, most children appeared to outgrow these difficulties. That is, within the context of Head Start, these children showed reduced levels of problem behaviors by the end of the school year. Previous research has demonstrated subgroups of children who demonstrated sharp improvements in problem behaviors through the early childhood years (NICHD Early Child Care Research Network, 2004).

An important contribution of the present study is its direct comparison of the relative risks of disruptive, or aggressive, and withdrawn, or disconnected, peer play behaviors as they relate to the stability of social competence. As expected, children exhibiting high levels of withdrawal from the peer group in the fall evidenced the lowest risk of maintaining maladaptive peer play behaviors compared to the other groups of children exhibiting problem behaviors in the fall. However, consistent with findings from Rubin and colleagues (e.g., Rubin et al., 1997), a subset of children exhibited withdrawn behaviors over time. Stable behavioral inhibition and anxious withdrawal from peers has been associated with a number of adverse outcomes (Gladstone, Parker, Mitchell, Wilhelm, & Malhi, 2005; Rosenbaum et al., 1991; Rubin et al., 1989; Schwartz et al., 1999), and children exhibiting such behaviors should not be overlooked. In addition, the present study found a subset of children who maintained disruptive peer play behavior over the course of the year. Children who exhibit stable or increasing levels of aggression among peer

groups are also at risk for a host of negative outcomes cognitively, academically, and socially (Brame et al., 2001; Campbell et al., 2006; Huesmann et al., 2009; Parker & Asher, 1987).

The current study was further able to demonstrate that, in particular, children who manifested significantly elevated levels of both disruptive and disconnected behaviors in the fall were the least likely to show improvements in peer play competence from fall to spring. Thus, beyond pointing to the independent patterns of externalizing and internalizing behaviors over the course of the year among preschoolers, the study suggests that comorbidity in and of itself is a critical feature for researchers and practitioners to note. It is likely that some children enter preschool with comorbid externalizing and internalizing disorders that place them at a greater risk than peers for consistently negative peer interactions. Another possibility is that children with extremely high levels of aggression at the beginning of preschool are quickly rejected by their peers who prefer cooperative and less volatile playmates.

Findings from the current study point to the key role that emotion dysregulation plays in the trajectory of peer play behavior in young children. Different levels of emotional lability in the fall distinguished those children who remained disordered over the course of the year from those children who demonstrated significant improvements in peer interactions. Similarly, levels of lability in the fall distinguished children who evidenced competent social interactions consistently from fall to spring from those children who demonstrated significant increases in maladaptive peer play behavior. These results extend previous findings by Eisenberg and colleagues (1997, 2005) to a different sample of children who are younger, predominantly African American, and from a lower SES background. Although preschool children may present with comparable levels of aggressive and withdrawn behavior at the beginning of the school year, differing levels of baseline emotion dysregulation significantly contribute to the trajectory of peer play competencies or lack thereof. Peer conflicts may serve as opportunities for social cognitive growth (Vaughn, Vollenweider, Bost, Azria-Evans, & Snider, 2003); however, a lack of sufficient regulatory skills, which are integral to emotional competence, may lead to consistently poor social competence (Denham et al., 2003).

Unexpectedly, emotion regulation did not differentiate between the Stable Disordered and Disordered Improving groups or between the Stable Nondisordered and Nondisordered Declining groups. One possibility is that teachers' ratings better capture dysregulated behaviors in children than regulated behaviors. In support of this notion, the internal consistency of the Lability/Negativity scale of the ERC was greater than the internal consistency of the Emotion Regulation scale. Negative, labile displays of emotion in the school setting are most likely more salient than more subtle displays of positive coping. Of note, teacher ratings of emotion regulation in the current study evidenced less variance than teacher ratings of lability, although it is unclear whether this reflects sample characteristics, biases in teacher ratings, or a combination. However, ratings on both scales included scores ranging from the minimum to maximum possible points. The inclusion of multimethod assessments, such as peer ratings and coded behavioral observations, could provide a more comprehensive examination of regulatory skills.

These findings also support the use of separate scale scores on the ERC rather than a composite score. Although Emotion Regulation and Lability/Negativity are highly correlated ($r = -.54$), they are separate constructs. Similar correlations between these subscales have been demonstrated among an ethnically diverse sample of children attending Head Start in a rural community and among a sample of primarily African American and Hispanic children attending Head Start in an inner city (Izard et al., 2008). Future research can continue to investigate this measure and its use with samples of at-risk preschool-age children. Prior studies using the ERC have largely focused on school-age children (e.g., Shields & Cicchetti, 1997).

Inconsistent with hypotheses, receptive vocabulary did not differentiate the various trajectories. That is, there were no significant differences between the Stable Disordered and Disordered Improving groups in receptive vocabulary. Likewise, no differences were found between the Stable Nondisordered and Nondisordered Declining groups. These null results may have been due to the use of a single-word receptive vocabulary measure rather than a more comprehensive examination of receptive language skills (Evans, 1996). Another possibility is that the range of PPVT scores in the present study was restricted, given that the full sample consisted of at-risk children. However, it is also possible that receptive language skills are less crucial than expressive language skills to the development of positive social interactions with peers. The current study was not designed to answer this question. Prior research examining expressive language and social interactions has shown a significant relation between the two constructs (Coplan & Armer, 2005). However, research has also clearly demonstrated that deficits in language comprehension are inversely related to the successful navigation of social relationships (Beitchman et al., 1996).

The present study found support for a possible interaction effect between age and trajectory group for receptive vocabulary. Specifically, younger children in the Stable Nondisordered and Stable Disordered groups had similar PPVT scores, whereas older children in the two groups had divergent scores. Older children in the Stable Nondisordered group performed better than older children in the Stable Disordered group. However, more research is needed to explore this possible interaction. This preliminary finding points to the need for developmentally sensitive research studies, even within limited time periods such as 1 year of preschool. Conclusions from the current study, however, are limited given that receptive vocabulary was only collected in the fall and only tapped single-word comprehension. Future research could examine changes in receptive vocabulary as they relate to changes in social competence. This preliminary finding may also point to the utility of early preventive interventions. If significant differences on cognitive measures between socially competent and socially disordered children are not evident until older ages, it is likely that well-designed interventions could prevent these negative consequences.

Although this study reveals important findings regarding the stability of social competence in preschool children attending Head Start, there are a number of limitations. Children's lability, emotion regulation, and peer play behaviors were all rated by teachers, allowing for the

possibility that shared method variance contributed to the significant findings. Future studies should include multimethod measures of constructs, such as coded behavioral observations and parent ratings. It should be noted, however, that in the current study teacher ratings of emotion regulation did not contribute to trajectory differences, whereas teacher ratings of lability did contribute to these differences. Therefore, it is unlikely that shared method variance fully explains the observed relations. Another limitation of the study was the relatively small number of children exhibiting problem behaviors. Most of the children exhibited socially competent peer interactions during play. Thus, more specific trajectory groups (i.e., stable disruptive, stable disconnected) were not examined. Moreover, gender differences were not fully explored in the present study given the limited sample size. Finally, emotion regulation, lability, and receptive vocabulary measures were only collected in the fall and peer play measures were only collected at the beginning and end of the year. More frequent assessments would allow for hierarchical linear modeling that could track individual trajectories over the course of the year.

Implications for Practice

From a developmental psychopathology perspective, unresolved stage-salient tasks (i.e., development of adaptive peer play behaviors) are carried forward and impact future tasks, such that the individual is at an increased risk for further maladaptation (Cicchetti, Toth, & Maughan, 2000). Therefore, without effective interventions, the preschool experience for some children may confer further risk rather than provide a supportive environment that promotes an adaptive outcome. This perspective also emphasizes the importance of context and the dynamic interplay between various levels of the child's environment (Bronfenbrenner, 1999; Weisz, 1997). Although the present study did not address contextual variables, future research should examine how parent–child, teacher–child, and parent–teacher interactions influence the trajectory of preschool children's peer play behaviors. Furthermore, given findings from the present study suggesting that a significant proportion of children as young as 3 years old exhibit consistently maladaptive peer play behavior, it may be important to administer interventions targeting parent–child interactions prior to entry into preschool for some families.

Walker and colleagues (1998) argued that effective early interventions entail three main components: (a) universal screening to identify at-risk children, (b) a school-based intervention that fosters positive peer relations and student–teacher relations, and (c) parent training. Findings from the current study inform understanding of the identification of at-risk preschool children and have implications for universal screening procedures. Children evidencing substantial elevations of comorbid disruptive and disconnected peer play behaviors in the beginning of the school year as measured by the PIPPS are at increased risk for maintained maladaptive behaviors over the course of the year. Furthermore, findings regarding the role of emotion dysregulation can inform screening procedures as well as behavioral targets for intervention.

A few efficacious preventive interventions aimed at improving young children's social competence and adaptive behaviors primarily target emotion regulation skills (e.g., Denham &

Burton, 1996; Izard et al., 2008; Webster-Stratton, Reid, & Hammond, 2001). For example, Izard and colleagues (2008) developed an emotion-based prevention program (EBP) that aims to increase children's emotion knowledge and emotion regulation. The teacher-implemented curriculum emphasizes the identification and understanding of emotions as well as techniques for regulating emotions. Yet questions remain regarding the differential impact of such interventions and the mechanisms of change. As noted, some children are at greater risk for stable patterns of maladaptive behaviors. Children with limited cognitive and emotional resources may require more intense intervention. Moreover, some preventive interventions, such as the Incredible Years (Webster-Stratton et al., 2001), focus largely on externalizing behaviors and on the prevention of oppositional defiant disorder and conduct disorder. Findings from the current study emphasize the importance of targeting both internalizing and externalizing problems, particularly given the negative trajectory evidenced by those preschool children with comorbid behavior problems. It is clear that without interventions beginning at the time of preschool entry or earlier, at-risk children may experience frequent and ongoing negative encounters within the peer group. These negative peer interactions are extremely unlikely to improve over time without direct intervention from practitioners.

Summary

The present study provided a comprehensive examination of the stability of peer play behaviors over the course of the year in a sample of children attending Head Start. Moreover, relations between stability and child cognitive and emotional characteristics were explored. Much of the previous research examining social competence in the preschool years has been cross-sectional in nature, examining concomitants of problem behaviors. The present study allowed for a nuanced picture of development among Head Start children by examining multiple trajectories of peer play behaviors. Of those children exhibiting primarily disruptive problems and primarily disconnected behavior problems in the beginning of the year, the majority outgrew these difficulties through normal developmental processes and, presumably, through the positive influence of a supportive environment including parents, teachers, and peers. Furthermore, most children exhibited positive play peer interactions across the school year. However, children with comorbid disruptive and disconnected peer play behaviors and high emotional lability in the fall were least likely among their peers to show improvements in social competence. The identification of these children who are at risk for continued maladaptive behaviors will allow for improvements in screening procedures and the administration of preventive interventions.

Notes

*$p < .05$.

**$p < .01$.

a Indicator group is male.

b Fall Nondisordered compared to fall Comorbid.

c Fall Disruptive compared to fall Comorbid.

d Fall Disconnected compared to fall Comorbid.

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