Published in final edited form as:

Emotion. 2014 April ; 14(2): 397–406. doi:10.1037/a0035079.

Children's Negative Emotions and Ego-Resiliency: Longitudinal Relations With Social Competence

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Abstract

We examined the relations of negative emotions in toddlerhood to the development of ego-resiliency and social competence across early childhood. Specifically, we addressed whether fear and anger/frustration in 30-month-old children ($N = 213$) was associated with the development of ego-resiliency across 4 time points (42 to 84 months), and, in turn, whether ego-resiliency predicted social competence at 84 months. Child anger/frustration negatively predicted the intercept of ego-resiliency at 42 months (controlling for prior ego-resiliency at 18 months) as well as the slope. Fear did not significantly predict either the intercept or slope of ego-resiliency in the structural model, although it was positively correlated with anger/frustration and was negatively related to ego-resiliency in zero-order correlations. The slope of ego-resiliency was positively related to children's social competence at 84 months; however, the intercept of ego-resiliency (set at 42 months) was not a significant predictor of later social competence. Furthermore, the slope of ego-resiliency mediated the relations between anger/frustration and children's later social competence. The results suggest that individual differences in anger/frustration might contribute to the development of ego-resiliency, which, in turn, is associated with children's social competence.

Keywords

ego-resiliency; anger/frustration; fear; social competence; negative emotionality

How children cope with and adjust to new experiences and challenges has important implications for their social-emotional development. Ego-resiliency is a dispositional trait

that reflects how individuals adapt to environmental stress, uncertainty, conflict, and change (Block & Block, 1980). An ego-resilient individual is skilled at adapting to changing circumstances, can shift behavior as needed, is resourceful and persistent, and uses problem-solving strategies flexibly. In contrast, a nonresilient individual is disquieted by new and changing circumstances, tends to brood and worry, goes to pieces under stress, and has difficulty recouping after traumatic experiences (Block & Block, 1980, 2006). In early childhood, ego-resiliency is evident in how well children are able to express affect in a situationally appropriate manner or find comfort when needed, how well they equilibrate physiological responses, and whether they are organized, persistent, and flexible when encountering challenges and stressors (Arend, Gove, & Sroufe, 1979; Block & Block, 1980). Individual differences in ego-resiliency can be observed early in life (Block & Block, 1980) and appear to be fairly stable across early childhood (Taylor, Eisenberg, Spinrad, & Widaman, 2013). Furthermore, it is likely that improvement in ego-resiliency (in addition to higher levels) relates to positive developmental outcomes in children, as these children are likely showing improvements in coping with stress, challenge, and novelty. However, trajectories of ego-resiliency have not been tested in prior research.

Ego-resiliency is modestly to moderately related to regulatory processes, particularly effortful control; however, researchers have found that ego-resiliency is a unique construct (see Block & Block, 2006; Eisenberg et al., 2003, 2004; Martel et al., 2007; Shields & Cicchetti, 1997; Taylor, Eisenberg, et al., 2013). Effortful control is a superordinate construct that includes temperamentally based regulatory processes such as attentional and inhibitory control and planning (Rothbart & Bates, 2006). Effortful control pertains to capacities that can be used for behavioral and emotional self-regulation. In contrast, ego-resiliency reflects individuals' dynamic and resourceful adaptability or characteristic coping style with stress and the ability to rebound (Block & Block, 2006). Ego-resiliency is expected to be influenced by temperamental and other personality characteristics (e.g., effortful control, emotionality), learning (e.g., of coping skills), and the nature of the stressors in a particular context. In other words, ego-resiliency is viewed as less constitutionally based than other regulatory constructs, such as effortful control, and more a measure of how well and flexibly individuals adapt to and deal with stressful interactions (Eisenberg et al., 2003, 2004). Indeed, recent empirical research has supported this distinction and the argument that effortful control provides the early building blocks toward children's ego-resiliency (Taylor, Eisenberg, et al., 2013).

As might be expected, given that ego-resiliency allows for flexible, and thus often successful, adaptation in social contexts, it has been concurrently and longitudinally associated with a range of positive developmental outcomes across a variety of ages. For example, ego-resiliency has been associated with popularity and social competence in childhood (Block & Block, 1980; Cumberland-Li, Eisenberg, & Reiser, 2004; Eisenberg et al., 1997; Spinrad et al., 2006; Van Aken, 1992) and adolescence (Eisenberg et al., 2003; Hofer, Eisenberg, & Reiser, 2010; Martel et al., 2007; Swanson, Valiente, Lemery-Chalfant, & O'Brien, 2011). Children with higher levels of ego-resiliency also have lower externalizing (Chuang, Lamb, & Hwang, 2006; Hofer et al., 2010; Smeekens, Riksen-Walraven, & van Bakel, 2008) and internalizing symptoms (Eisenberg, Chang, Ma, & Huang, 2009; Eisenberg et al., 2004; Martel et al., 2007) than those who are less resilient.

Ego-resiliency is also positively associated with cognitive functioning and attentiveness (Martel et al., 2007).

Despite these demonstrated associations with positive development and emotional adjustment, few researchers have examined antecedents to the development of ego-resiliency. Having a greater understanding of factors that contribute to the development of ego-resiliency would better inform intervention efforts to foster this construct in children. In a small body of work, researchers have demonstrated that warm and sensitive parenting (Block & Block, 1980; Stams, Juffer, Van Ijzendoorn, & Hoksbergen, 2001; Taylor, Sulik, et al., 2013), as well as children's effortful control (Taylor, Eisenberg, et al., 2013), are associated with individual differences in ego-resiliency. However, although Block and Block (1980) hypothesized that temperamental characteristics likely contribute to the development of ego-resiliency, few researchers have examined the relations between ego-resiliency and children's dispositional negative emotionality. Blair and Ursache (2011) have argued that high levels of emotional arousal reduce the ability to flexibly control attention and impair executive functions (see also Dennis & Chen, 2007). Therefore, it is possible that children who are more emotionally reactive may have greater difficulty recovering from challenging, novel, or stressful circumstances compared with less reactive children, and thus have lower levels of ego-resiliency. In turn, such difficulties could contribute to deficits in social competence.

Negative Emotionality and Social Competence

Individual differences in negative emotionality, such as frustration, fear, sadness, and anger, are generally considered to be aspects of early emerging temperament that have broad effects on socioemotional development (Rothbart & Bates, 2006). Anger/frustration is considered a basic emotion that can vary in intensity from mild irritation to intense fury and rage (Deater-Deckard & Wang, 2012), and is most often observed in early childhood in relation to interruption of ongoing tasks or goal blocking (Putnam, Gartstein, & Rothbart, 2006). Outbursts of anger and frustration typically peak around 18 to 30 months of age, and then decline as children begin to gain more control over their impulses and emotional reactions (Calkins & Fox, 2002; Degnan, Calkins, Keane, & Hill-Soderlund, 2008). Fear is a negative emotion related to anticipated pain, distress, and/or threat, including startle reactions to novelty and social stimuli (Gartstein, Putnam, & Rothbart, 2012). There is evidence that fear trajectories also increase between the ages of 4 and 12 months of age and then decrease (Braungart-Rieker, Hill-Soderlund, & Karrass, 2010; Gartstein et al., 2010). However, there are significant individual differences in the rate of deceleration from 12 to 16 months (Braungart-Rieker et al., 2010).

Negative emotions frequently have been found to predict later externalizing and internalizing symptoms (e.g., Gartstein et al., 2012; Rothbart & Bates, 2006). In particular, anger/frustration has been consistently related to later externalizing problems (Eisenberg et al., 2005, 2009; Nigg, 2006), whereas fearfulness has been linked most consistently to internalizing symptoms (e.g., Oldehinkel, Hartman, De Winter, Veenstra, & Ormel, 2004) and social anxiety (Schwartz, Snidman, & Kagan, 1999). Although both fear and anger/frustration appear to relate detrimentally to children's development, anger is related to the

behavioral approach system, whereas fear is more often related to behavioral inhibition or active withdrawal (Carver & Harmon-Jones, 2009; Lewis, 2010). Thus, it is possible that they relate to different aspects of developmental functioning. For example, although most infants experience anger and frustration, children with higher levels of dispositional anger and frustration often have difficult peer and social relationships, likely due, in part, to inappropriate and impulsive behavior (Bush, Lengua, & Colder, 2010; Eisenberg et al., 1999; Jones, Eisenberg, Fabes, & MacKinnon, 2002; Maszk, Eisenberg, & Guthrie, 1999). In contrast, fearful children may be more likely to elicit prosocial behavior from others (Coplan & Bullock, 2012; Jenkins & Ball, 2000), although wary, inhibited children are often not liked by peers (Rubin, Bukowski, & Parker, 2006) and can have low levels of social competence (Spinrad et al., 2004).

Relations between these negative emotions and social competence could be because children who are prone to fearfulness or have a tendency to become angry or frustrated have greater difficulty recovering from challenging or stressful circumstances compared with less reactive children, which could contribute to deficits in social competence. Children prone to anger/frustration may be especially likely to display impulsive, externalizing behaviors when dysregulated by stress, whereas children prone to fear would be expected to exhibit inhibition and social withdrawal (e.g., Derryberry & Rothbart, 1997; Eisenberg et al., 2001). Researchers have found that children with higher levels of anger and fear have lower levels of self-regulation (e.g., Braungart-Rieker et al., 2010; Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994), although some highly reactive infants do recover quickly, and less reactive infants may not have very good regulation skills. Additionally, as low reported impulsivity (sometimes viewed as approximately indicative of behavioral inhibition) has been related to low resiliency in young schoolchildren (Eisenberg, Spinrad, & Morris, 2002), one would expect fearfulness, which tends to be associated with behavioral inhibition (e.g., Aksan & Kochanska, 2004), to predict low ego-resiliency.

Negative Emotions and Ego-Resiliency

Only one article has directly examined the association between dispositional negative emotionality and ego-resiliency (Eisenberg et al., 2003), although ego-resilient children have been described as less fearful than nonresilient children (Asendorpf & van Aken, 1999; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996). Eisenberg et al. (2003) found that adults' reports of school-aged children's negative emotionality (a broad construct that reflected sadness, anxiety, distress, and anger) were negatively related to children's ego-resiliency concurrently and across a 2-year span. Drawing from research that has examined constructs related to ego-resiliency (i.e., inhibition, neuroticism, and physiological responses to stress), we hypothesized that fearful as well as angry/frustrated children have lower levels of ego-resiliency. For example, behaviorally inhibited children tend to be wary and reactive to novelty (Derryberry & Rothbart, 1997; Kagan & Fox, 2006), and withdrawn behavior has also been associated with lower levels of ego-resiliency (Eggum et al., 2009). Infants who become easily frustrated have also been found to have difficulties regulating emotions and are more distressed by novelty than infants who do not frustrate easily (Calkins, Dedmon, Gill, Lomax, & Johnson, 2002). Children who are prone to anger and frustration are additionally more physiologically reactive to stressful events than children less prone to

these negative emotions (Calkins et al., 2002; Spinrad et al., 2009; van Bakel & Riksen-Walraven, 2004). For example, Spinrad and colleagues (2009) found that 4-year-olds with higher temperamental anger exhibited larger increases in salivary alpha amylase, a saliva biomarker of sympathetic nervous system responding, after a social stressor task than those with lower levels of anger.

Finally, support for a relation between negative emotionality and ego-resiliency has also been documented in the developmental resilience literature (Lengua, 2002; Shiner & Masten, 2012). For example, Shiner and Masten found that 10-year-old children with higher levels of neuroticism (defined as children who worry, get upset easily when things go wrong, or are sad) had a harder time overcoming later adversity in emerging adulthood (age 20), suggesting that childhood temperament has a long-term impact on later levels of resiliency and competence.

In summary, the literature suggests that children with both fearful and frustrated/angry temperaments are likely to be lower in ego-resiliency than their less emotional counterparts, and that fearfulness and anger/frustration are also associated with the development of ego-resiliency. We added to this prior literature by examining fear and anger separately rather than looking at negative emotionality overall.

Present Study

Given this prior work, the goals of the present study were to longitudinally examine relations among children's negative emotions, ego-resiliency, and social competence. Specifically, we had three aims. First, we wanted to examine whether anger/frustration and fear predicted the development of ego-resiliency across early childhood, and, in turn, whether the developmental trajectory of ego-resiliency predicted children's later social competence. Despite a clear association between ego-resiliency and social competence, few researchers have examined these constructs across more than one or two time points, and, to our knowledge, none has used latent growth modeling. In doing so, we were able to test not only whether negative emotionality was associated levels of children's ego-resiliency at 42 months but also whether it predicted rate of growth in ego-resiliency. We expected that children who became more ego-resilient over time would have higher levels of social competence; we were unclear if ego-resiliency at 42 months would predict social competence 3.5 years later because many changes occur during this period of development.

Second, we examined whether fear and anger/frustration were differentially related to the development of ego-resiliency. We expected both dispositional fear and dispositional anger to be negatively associated with children's ego-resiliency because both anger and fearfulness involve emotional arousal that might hinder children's ability to manage and recoup from stress (Blair & Ursache, 2011). However, it was possible that frustration/anger and fear would undermine ego-resiliency in different ways, as prior studies have shown that dispositional levels of anger/frustration relate to different aspects of children's developmental competence and functioning than fear. Therefore, we examined anger/frustration and fearfulness as separate predictors of children's ego-resiliency.

Our final aim was to examine whether ego-resiliency mediated the relation between negative emotionality and social competence, as this had not been tested in prior research. Research has demonstrated links between anger/frustration and externalizing symptoms (e.g., Eisenberg et al., 2005), as well as fearfulness and internalizing symptoms (e.g., Oldehinkel et al., 2004). We hypothesized that ego-resiliency may be a mediating mechanism between negative emotionality and developmental outcomes.

Specifically, we separately examined whether children's dispositional fear and anger/frustration at 30 months were associated with the development of ego-resiliency across four time points (42, 54, 72, and 84 months) and, in turn, social competence at 84 months. To our knowledge, no one has examined change in ego-resiliency as a predictor of social competence, although change is a better index of the development of ego-resiliency than assessment at only one prior time point. Additionally, we controlled for prior levels of ego-resiliency in order to more stringently test prediction of change over time in this construct from 42 to 84 months. We also examined whether the development of ego-resiliency mediated relations of dispositional negative emotionality to social competence. Moreover, by including both anger/frustration and fear as independent constructs in the analyses, we were able to examine whether fear and anger had unique relations to children's ego-resiliency and children's social competence.

Method

Participants

Participants were families residing in a metropolitan area in the southwest United States who were part of a longitudinal study of social and emotional development (see Spinrad et al., 2007). Mothers completed questionnaires at 18, 24, 30, 42, 48, 54, 72, and 84 months of age ($n_s = 256, 225, 230, 210, 194, 192, 162, \text{ and } 144$, respectively) and accompanied their child (55% boys) to laboratory visits (or a home visit at 72 months), which lasted approximately 1.5 to 2 hr at 18, 30, 42, 54, and 72 months. During these sessions, mothers were recorded interacting with their child during a series of tasks. Nonparental caregivers who knew the child well (e.g., babysitter, grandparent, and preschool teachers at earlier ages, and teachers at later ages) also completed questionnaires at 18, 30, 42, 54, 72, and 84 months ($n_s = 176, 153, 151, 145, 144, \text{ and } 133$, respectively).

To be included in the present study, participants had to have at least one report of ego-resiliency measured at either 42, 54, 72, or 84 months ($N = 213$). At 30 months, 89.4% of the children were Caucasian, and 11% of the sample was Hispanic. Average annual family income at 30 months was \$45,000 to \$60,000 (range = \$15,000 to \$100,000), and mothers had an average of 2 years of college education. We conducted attrition analyses using t tests comparing values of the major variables and demographic variables for children with no data at 84 months ($n = 70$) with those who had data at this time point. Those without data at 84 months had higher levels of fear ($t = 2.44, df = 197, p < .05$; mean difference = .28) and lower levels of ego-resiliency at 54 months ($t = -2.33, df = 203, p < .05$; mean difference = -.30). Families with missing data also had marginally significant lower levels of household income ($t = -1.89, df = 198, p = .06$; mean difference = -.53) and mothers' education ($t = -1.92, df = 201, p = .06$; mean difference = -.30). The results of Little's missing completely

at random test (Little, 1998) suggested that the data were missing at random, $\chi^2 = 135.22$, $df = 117$, $p = .12$. Covariance coverage ranged from 65.3% to 95.3% at Time 1, to 52.6% to 72.3% at Time 3.

Measures

Ego-resiliency—At 18, 42, 54, 72, and 84 months, mothers rated children on an 11-item revised questionnaire version of Block and Block's (1980) ego-resiliency Q-sort (1 = *highly undescriptive* to 9 = *highly descriptive*). This shortened scale was constructed by Eisenberg et al. (2003) in order to measure a purer version of resiliency (than in the original measure) that did not overlap with other related constructs, such as negative emotionality. After an initial reduction of the Q-sort to 23 items based on a content analysis by three experts (Eisenberg et al., 1996), six faculty and five graduate students with relevant expertise rated the resiliency items as to how much they reflected pure (i.e., uncontaminated by other constructs) resiliency from 1 (*not at all descriptive of resiliency*) to 9 (*most descriptive of resiliency*). Resiliency was defined as flexible, adaptable behavior. Only the 11 items that obtained a mean score of 5.8 or above (absolute value) were retained (e.g., "Can bounce back or recover after a stressful or bad experience," "Freezes up when things are stressful, or else keeps doing the same thing over and over again"). All correlations between the original scale and the 11-item scale were above .83 (mean $r = .91$). This shortened scale has been reliable in numerous studies with children ranging in age from toddlers to adolescents (e.g., Cumberland-Li et al., 2004; Eisenberg et al., 2004; Martel et al., 2007; Swanson et al., 2011; Taylor, Eisenberg, et al., 2013).

Items were coded so that a high score reflected higher levels of ego-resiliency ($\alpha s = .57, .71, .71, .75, .78$). One item from the original 11-item scale was dropped at 18 months ("Can talk about unpleasant things that have happened to him/her") because it was considered inappropriate for the age assessed. At 18 months, items were composited into three indicators (parcels) in order to measure ego-resiliency at a latent level, with the stipulation that each indicator included both negative and positive items, as recommended by Kishton and Widaman (1994). Reports at 42, 54, 72, and 84 months were used to construct the growth model, with the intercept set at 42 months.

Child anger/frustration—Children's anger/frustration was measured at 30 months using three indicators. The first two indicators were mothers' and nonparental caregivers' reports of children's anger/frustration using 12 items from the Early Childhood Behavior Questionnaire (ECBQ; Putnam et al., 2006; e.g., "While having trouble completing a task [e.g., building, drawing, dressing], how often did your child get easily irritated?" and "When s/he asked for something and you said 'no,' how often did your child have a temper tantrum?"). Responses ranged from 1 = *never* to 7 = *always* ($\alpha s = .81$ for mothers and .84 for nonparental caregivers). The third indicator was observer report of children's anger/frustration using a modified Infant Behavior Record (IBR) (Bayley, 1993). Four research staff observed the child's behavior across the entire laboratory visit, and assessed how angry or frustrated the child became when he or she could not complete a task correctly or was not allowed to get what he or she wanted. The scale ranged from 1 = *no anger or frustration observed* to 4 = *intense anger/frustration*. Interrater reliabilities were calculated for

approximately 25% of the data and were .78 across the four observers. Mothers' and nonparental caregivers' reports were significantly correlated ($r = .24, p = .01$). Mothers' and observers' reports were modestly correlated ($r = .12, p = .08$), as were nonparental caregiver and observer reports ($r = .16, p = .06$).

Child fear—Children's fearfulness was measured at 30 months using the 12-item subscale for fear from the Early Childhood Behavior Questionnaire (ECBQ; Putnam et al., 2006; e.g., "While at home, how often did your child seem afraid of the dark?" and "When visiting a new place, how often did your child not want to enter?"). Responses ranged from 1 = *never* to 7 = *always* ($\alpha = .75$ for mothers, $\alpha = .79$ for nonparental caregivers). Mothers' and nonparental caregivers' reports of fear were significantly correlated ($r = .32, p < .01$). The same items for parents and caregivers were paired, and then these pairs of items were randomly composited into three parcels in order to measure ego-resiliency at a latent level. Considerable research supports parceling of items to develop multiple indicators of latent constructs to avoid contaminating influences of measurement error when estimating relations among latent variables (Coffman & MacCallum, 2005; Little, Cunningham, Shahar, & Widaman, 2002). Although we had IBR observer reports for fear, these reports did not correlate with mothers' and caregivers' reports, and we chose not to use them in the latent variable.

Child social competence—Children's social competence was reported by mothers and teachers at 84 months using three scales: the Prosocial Behavior Scale (PSB), the Social Competence and Behavioral Evaluation (SCBE), and the Children's Global Assessment Score (CGAS). Mothers' and teachers' scores were averaged for all three scales.

The first indicator used the PSB, a four-item scale ranging from 1 = *always true* to 5 = *never false* (Ladd & Profilet, 1996). Items included "This child tries to cheer up peers when they are sad or upset about something" and "This child is kind to peers" ($\alpha = .92$ for mothers, $\alpha = .94$ for teachers). Mothers' and teachers' reports were significantly correlated ($r = .18, p < .05$).

The second indicator was a 10-item social competence subscale from the shortened version of the SCBE (LaFreniere & Dumas, 1996). Responses ranged from 1 = *never* to 6 = *always*. Items included "Takes other children and their point of view into account" and "Helps with everyday tasks" ($\alpha = .83$ for mothers, $\alpha = .94$ for teachers). Mother and teacher reports were significantly correlated ($r = .21, p < .05$).

The third indicator used the CGAS, a subscale from the Child Symptoms Inventory (Gadow & Sprafkin, 2002). Mothers and teachers rated the child's level of functioning (e.g. competent at home, at school, and with friends; likable, confident, involved in activities and interests) over the past 6 months on a scale of 1 to 100. To make this scale comparable with the other scales, we divided each score by 20, so that the scale ranged from 1 to 5 (1 = extremely impaired to 5 = doing very well in all areas). The mean score for this scale was 4.43 ($SD = .46$) for mothers, 4.30 ($SD = .57$) for teachers, and 4.36 ($SD = .44$) for combined reports. Mothers' and teachers' reports were significantly correlated ($r = .42, p < .01$).

Covariates—The following covariate variables were included in the analysis: annual household income (1 = *less than \$15,000* to 7 = *over \$100,000*) and mothers' education (1 = *grade school* to 7 = *PhD or MD*).

Analysis Strategy

We first examined correlations among the variables. Next, we evaluated an unconditional structural equation model to test the model with a latent growth curve for ego-resiliency using Mplus Version 6.1 (Muthén & Muthén, 1998–2011). We then added our predictor and outcome variables. We used full information maximum likelihood (FIML) estimation, given the presence of some missing data. FIML estimation involves the fitting of covariance structure models directly to the raw data from each participant rather than to covariances among manifest variables. This avoids deleting persons with missing data (i.e., such as in listwise deletion). FIML estimation has been found to be efficient and unbiased when data are missing completely at random or are missing at random, and appears to be less biased than other approaches (Arbuckle, 1996).

To evaluate the fit of a structural model, we used the standard chi-square index of statistical fit that is routinely provided under maximum likelihood estimation of parameters, as well as several indices of practical fit, including the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993), the standardized root mean square residual (SRMR), the Tucker-Lewis index (TLI; Tucker & Lewis, 1973), and the comparative fit index (CFI; Bentler, 1990). The RMSEA is an absolute index of fit, with values below .05 indicating close fit to the data. For the SRMR, a value less than .08 is generally considered a good fit. The TLI and CFI should be greater than .90 and preferably greater than .95 (Hu & Bentler, 1998).

Results

Table 1 presents the zero-order correlations among the variables, as well as variable means and standard deviations. Correlations were mainly as expected. For example, children's negative emotions (fear and anger/frustration) at 30 months were significantly negatively correlated with children's ego-resiliency across all four later time points. Social competence and ego-resiliency were significantly correlated at 84 months and marginally correlated at 72 months. Unexpectedly, early fear and anger/frustration were not significantly correlated with children's later social competence, although both relations were negative.

We then tested an unconditional model with both linear and quadratic changes. However, the mean and variance for the quadratic model were not significant, suggesting this type of model was not supported. A linear model (without the quadratic) fit the data well, $\chi^2(5, N = 213) = 3.964, p > .05$, CFI = 1.00; TLI = 1.01; RMSEA = .00; SRMR = .05; mean intercept = 6.93, $p < .01$. The variance of the intercept ($b = .37, SE = .07, p < .01$) was significant, suggesting that children have different levels of ego-resiliency at 42 months. However, the variance of the linear slope was not significant. We next tested our model for moderation by child sex. We met the criteria for strict invariance, $\chi^2 = 29.69, df = 20, p > .05$. We were also able to constrain the beta pathways in the model, $\chi^2 = 3.51, df = 8, p > .05$. Thus, it

was evident that the model ran equally well for males and females, and the two groups were combined in further analyses.

We then added our predictor and outcome variables as shown in Figure 1, $\chi^2(129, N = 213) = 152.049, p > .05$; CFI = .972; TLI = .966; RMSEA = .029; SRMR = .067. As expected, child fear and anger/frustration at 30 months were positively correlated with each other, and were both negatively correlated with children's ego-resiliency at 18 months. The variance of the intercept was significant ($b = .63, SE = .10, p < .01$), and the variance in the slope became significant ($b = .78, SE = .18, p < .01$). By adding variables to the unconditional model, more information is gained and power is increased. Child frustration negatively predicted both the intercept of ego-resiliency at 42 months and the slope (controlling for prior ego-resiliency at 18 months). Fear did not significantly predict either the intercept or slope of ego-resiliency.¹ The slope of ego-resiliency positively predicted children's social competence at 84 months. However, the intercept of ego-resiliency did not predict later social competence. Anger/frustration and fear did not directly predict social competence, and these paths were not included in the final model. Income and mother's education were included as covariates and regressed on all variables.

We additionally tested indirect effects from anger/frustration to children's social competence via the slope of ego-resiliency using RMediation because simulations show that bootstrap confidence intervals can result in undercoverage for smaller samples (Tofighi & MacKinnon, 2011). The confidence interval (CI) for the indirect effect of anger predicting social competence via the slope of ego-resiliency did not contain zero (95% CI [-.796, -.038]). Thus, there was evidence for mediation for this path.

Discussion

Using longitudinal data from age 30 to 84 months, we examined whether children's negative emotionality (frustration/anger and fearfulness) in early childhood was associated with the development of ego-resiliency across middle childhood, and, in turn, whether ego-resiliency predicted children's social competence. Our results suggested that negative emotionality, especially frustration/anger, might hinder the development of children's ego-resiliency. In particular, frustration/anger was negatively related to the intercept and slope of ego-resiliency from 42 to 84 months, even when controlling for 18-month ego-resiliency. This suggests that frustration/anger is associated not only with children's levels of ego-resiliency at 42 months but also with its rate of change. In other words, children who were relatively higher on dispositional anger/frustration did not increase in ego-resiliency as much as those children with lower levels of anger/frustration. We also found evidence that ego-resiliency mediated the relation of children's anger to their social competence. Mediation suggests that the any causal effects of children's dispositional anger/frustration on their social competence are due, in part, to its effects on the development of ego-resiliency. This mediated effect might indicate that more emotionally reactive children have greater difficulty dealing with and recovering from stressful situations, and that this leads to lower levels of social

¹We also tested a model with only fear and not anger to assess whether fear was singularly associated with ego-resiliency. Fear predicted the intercept of ego-resiliency ($b = -.21, SE = .10, p < .05$) but not the slope ($b = -.23, SE = .20, p = .27$). The other findings were the same.

competence. For example, young children high in anger are more likely to engage in externalizing behavior and tend to be impulsive (e.g., Eisenberg et al., 2004; Maszk et al., 1999); thus, they are more likely to enact behaviors that are associated with lower peer status and social incompetence (Rubin et al., 2006).

In the zero-order correlations, individual differences in children's adult-reported frustration/anger and fearfulness at 30 months were consistently negatively related to ego-resiliency at 42 to 84 months of age. However, in the structural model that included both constructs, only frustration/anger uniquely and negatively predicted the initial level and the slope of ego-resiliency. Thus, anger at 30 months predicted a decline in ego-resiliency over the next 3.5 years, even when taking into account the level of ego-resiliency at 18 months. Nonetheless, fear was negatively associated with the intercept of ego-resiliency when used in a model without frustration/anger (see Footnote ¹). Given this, it is likely that both frustration/anger and fearfulness provide some overlapping variance when predicting ego-resiliency. This overlapping variance may be due to both leading to social behaviors that are relatively reactive (closely linked with emotion and performed without much voluntary control; see Eisenberg, Hofer, Spinrad, & Sulik, in press) rather than effortfully modulated, and, consequently, both result in relatively inflexible and often socially unskilled behavior.

It is reasonable to assume that early individual differences in negative emotionality might affect the development of ego-resiliency. As already noted, children prone to anger (or fearfulness) are likely to become dysregulated from emotional over-arousal, which may prevent them from recouping easily (Blair & Ursache, 2011). In addition, the high level of arousal involved in anger (or fearfulness) might hinder children's learning productive ways to manage stress and the associated arousal, with the consequence that they are relatively unlikely to develop the tools and flexibility needed to recoup easily from stress. Our findings are consistent with research that has found a positive association between anger/frustration and stress reactivity (e.g., Calkins et al., 2002; Spinrad et al., 2006; van Bakel & Riksen-Walraven, 2004).

The fact that children's fearfulness was negatively correlated with ego-resiliency is also consistent with expectations, although, as previously noted, fearfulness did not uniquely predict ego-resiliency once the relation of frustration/anger to ego-resiliency was taken into account. Children who are fearful tend to withdraw from novel situations, and nonresilient children tend to be disquieted by new and changing situations. Moreover, fearfulness, like anger, could disrupt regulatory mechanisms and learning that contribute to the ability to adapt and rebound from stress. It is possible that frustration/anger and fear undermine ego-resiliency in different ways across different contexts, or that the overlap between the two emotion variables made anger/frustration the stronger predictor. These findings do suggest that future work should examine these constructs separately in order to disentangle and differentiate the effects of these two constructs on children's social and emotional development.

Also important, we found that the slope of children's ego-resiliency across four time points (42 to 84 months) predicted children's social competence at 84 months. Unexpectedly, the intercept of ego-resiliency did not predict social competence, although the zero-order

correlations between 72-month ego-resiliency and social competence were near significant for the latter at 72 months and significant at 84 months. (A model with the intercept set at 84 months also did not predict social competence). The fact that the slope of ego-resiliency and not the 42-month intercept predicted social competence at 84 months is consistent with the argument that ego-resiliency is changing in different ways for different individuals across preschool and early school years, and that it is the direction of change, not early levels of ego-resiliency, that are relevant to social competence at 7 years of age. Children's ego-resiliency may change too much from age 42 to 84 months for early resiliency to predict later social competence. The association of ego-resiliency to social competence is not surprising: Prior research has found relations between ego-resiliency in early childhood and later social characteristics such as responsiveness, sensitivity, and popularity with friends in middle childhood (Block & Block, 1980; Spinrad et al., 2006). Moreover, ego-resilience in middle childhood has been linked to higher social-cognitive development, such as friendship understanding in adolescence (Hart, Keller, Edelstein, & Hofmann, 1998). However, although these prior findings were longitudinal, the present study is the first to examine individual differences in trajectories for the development of ego-resiliency.

The slope of ego-resiliency significantly mediated the relation of early frustration/anger to later social competence. Thus, anger may affect social competence in the school years by undermining children's ego-resiliency. Of course, correlational findings cannot prove causal relations; nonetheless, the findings suggest a possible pathway from early negative emotionality to later deficits in social competence.

Strengths of the study include the use of longitudinal data, growth curve modeling, and multiple reporters (e.g., mothers and nonparental caregivers in the early years and teachers in the school years) and methods (e.g., both questionnaire and observed data). Weaknesses include the use of only one reporter of ego-resiliency and the lack of early measures of social competence. In addition, the findings may not generalize to diverse populations, as our sample included few high-risk children and was primarily Caucasian (non-Hispanic). It is also likely that other variables that we did not examine (such as socialization) could affect emotion and ego-resiliency, as well as social competence. Nonetheless, our findings suggest that children with higher levels of anger and frustration in early childhood have slower growth in their development of ego-resiliency in later childhood. Additionally, our results suggest that improvements in ego-resiliency across the preschool and early school years (i.e., children who get better at coping with stress, novelty, and challenge) relate to individual differences in social competence.

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Results of the growth model, $N = 213$. Note: $\chi^2(117, N = 213) = 140.048, p > .05$; CFI = .968; TLI = .958; RMSEA = .031; SRMR = .058. Standardized results are shown with standard errors in parentheses. All factor loadings are significant at $p < .01$. Controls for mothers' education and household income were included on all latent variables and removed if nonsignificant. RA-RC = mother report of ego-resiliency in parcels; OB = observer report of anger/frustration; MO = mother report of anger/frustration; CA = nonparental caregiver report of anger/frustration; FA-FC = combined mother and nonparental caregiver report in parcels; SCBE = Social Competence Behavioral Scale, combined mother and teacher report; PSB = Prosocial Behavior Scale, combined mother and teacher report; CGAS = Children's Global Assessment Scale, combined mother and teacher report. ** $p < .01$. * $p < .05$.

Table 1
Zero-Order Correlations Among the Major Constructs (Aggregated) and Control Variables (N = 213)

	1	2	3	4	5	6	7	8	9	10	11
1. ER 18 mo	1.00										
2. Fear 30 mo	-.13***	1.00									
3. Frust 30 mo	-.06	.21**	1.00								
4. ER 42 mo	.31**	-.20**	-.14*	1.00							
5. ER 54 mo	.37**	-.17*	-.17*	.52**	1.00						
6. ER 72 mo	.36**	-.22**	-.18*	.49**	.58**	1.00					
7. ER 84 mo	.22**	-.32**	-.20*	.55**	.58**	.64**	1.00				
8. Comp 84 mo	-.01	-.12	-.11	.08	.09	.16***	.35**	1.00			
9. Income 30 mo	.02	-.09	-.20**	.16*	.07	.08	.13	.13	1.00		
10. Mo. ed. 30 mo	.11	.06	-.09	.11	.02	.15***	.01	.13	.60**	1.00	
11. Child sex	-.02	-.12***	.03	.01	.06	-.03	-.12	-.15***	.07	.03	1.00
<i>M</i>	6.80	2.46	3.07	7.00	6.92	6.83	6.93	4.17	4.21	4.39	—
<i>SD</i>	(.72)	(.76)	(.65)	(.88)	(.89)	(.91)	(1.02)	(.47)	(1.85)	(1.02)	—

Note. ER = ego-resiliency; mo = months; Frust = frustration; Comp = social competence; Mo. ed. = mothers' education; Child sex: 0 = female, 1 = male.

*
 $p < .05$.

**
 $p < .01$.

 $p < .10$.