Longitudinal Development of Infant Distractibility from Social Events Across 3 to 36 Months of Age

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Introduction

Infant distractibility (i.e., poor attentional control; looking to a distractor event in the presence of target events) has been shown to negatively influence language and social-emotional outcomes in infants (Dixon & Salley, 2007; Salley et al., 2013; Graziano et al., 2011). Previously we demonstrated that infant distractibility while viewing social (but not nonsocial) events at 12 months predicted infant receptive vocabulary at 18 months (Testa et al., under review). Infant distractibility from social events is thus an important predictor of later outcomes. This highlights the value of characterizing developmental change in distractibility across infancy. Little research, however, has assessed this question (but see Kannass et al., 2006 for a study showing improvement in distractibility from nonsocial events across age). Here we assessed the developmental trajectory of infant distractibility (attention to a distractor event while viewing social target events) across 3 to 36 months of age.

Methods

The Multisensory Attention Assessment (MAAP; Bahrick et al., 2018) provides a fine-grained measure of distractibility by assessing looks away from audiovisual social or nonsocial events to an irrelevant distractor stimulus. The MAAP was administered to 104 infants (53 F) longitudinally when infants were 3, 6, 12, 18, 24, and 36 months of age. Each trial of the MAAP (n = 24) begins with a silent 3-second central visual distractor (morphing geometric shapes) followed by two lateral events. For half the trials, the lateral events depict two women speaking (Figure 1; social events). The visual movements of one woman are synchronous with the speech sounds and those of the other are asynchronous. For half of the social trials (distractor trials), the central distractor event remains on during the lateral events, providing a source of irrelevant, competing stimulation. Infant distractibility is measured during the distractor trials as the proportion of total looking time to the central distractor divided by the looking time to all three events (synchronous, asynchronous, distractor).

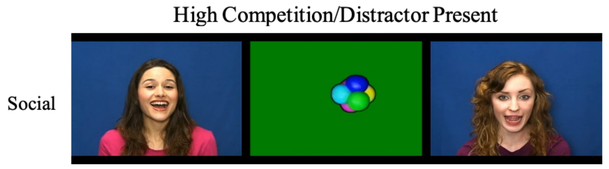

Figure 1. Static images of the dynamic audiovisual events from the MAAP

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Results

We assessed longitudinal trajectories of child distractibility in the context of social events using SEM-based latent growth curve modeling. Distractibility exhibited a significant nonlinear decrease across age.There was a steep decrease in child distractibility from 3 (M = .64, SD = .18) to 6 months of age (M = .47, SD = .23), followed by a slighter decrease from 6 to 36 months of age (M = .36, SD = .18; Figure 2). A quadratic model exhibited good model fit, $X^2(12) = 12.70$, p = .40, and was a significant improvement relative to a linear model, which showed poor fit, $X^2(16) = 51.94$, $p < .001$. For the quadratic model, both the linear (b = -.10, SE = .02) and the quadratic (b = .01, SE = .003) slopes were significantly greater than chance, ps < .001.

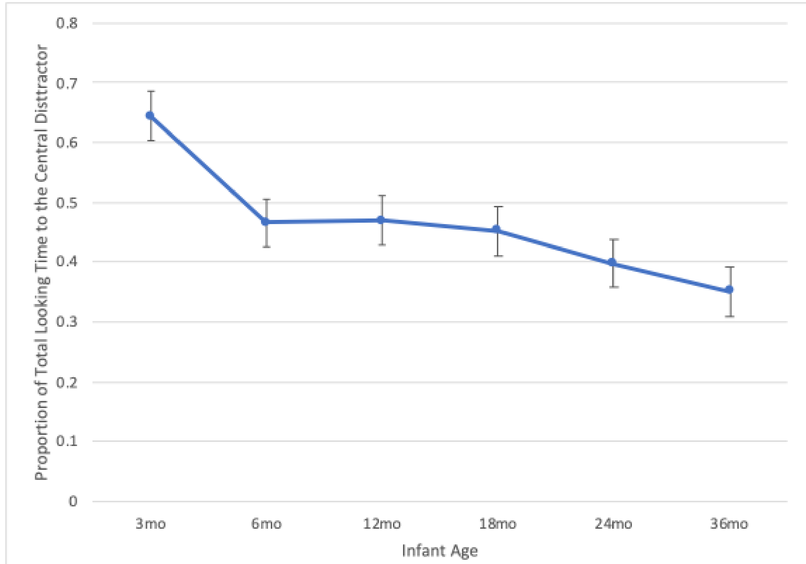

Figure 2. Line plot depicting the longitudinal trajectory of child distractibility from 3 to 36 months of age. Model Coefficients: Intercept = .64, SE = .02; Linear slope = -.10, SE = .02, p < .001; Quadratic slope = .01, SE = .003, p = .001.

Conclusions

Findings characterize the development of infant distractibility in the context of social events across the first three years of life. The most rapid improvement in distractibility occurred between 3 to 6 months with smaller improvements from 6 to 36 months of age. Findings from this study may inform the development of attentional interventions that seek to reduce infant distractibility by identifying periods of the most developmental change and the most effective age during which to implement interventions. Future research will assess the ability of individual longitudinal trajectories of distractibility in the context of social events to predict language and social emotional outcomes.

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