

## Abstract

**Background:** The COVID-19 pandemic was a novel public health event disrupting the psychosocial, economic, and educational environments in which young children live, learn, and grow. These disruptions may have lasting developmental consequences.

**Objective:** We aimed to compare ASQ-3 developmental screening scores at 24 months between U.S. children born before and during the pandemic to better understand potential pandemic effects.

**Design/Methods:** This retrospective cohort study included children born at >37 weeks gestation who completed a 24-month well visit at our university-affiliated primary care clinic between 3/1/19-12/31/22. We created 3 cohorts based on the child's age at the start of the pandemic: prepandemic (DOB<3/1/18), transitional (3/1/18<DOB<3/1/20), and pandemic (DOB>3/1/20). We analyzed ASQ-3 domain scores, a total score for all domains, and the percentage of children classified as atypical (>1SD below the mean) in each domain. Cohorts were compared using multivariable logistic or linear regression adjusted for child age, sex, and insurance. For the transitional cohort, we constructed regression models to assess the relationship between ASQ-3 measures and the duration of pandemic exposure (in days) prior to the 24-month visit.

**Results:** Of 664 children assessed, most were identified as Hispanic/Latino (37%) or Non-Hispanic Black (26%) and were on a government-sponsored insurance (77%) (Table 1). Table 2 presents 24-month ASQ-3 scores and atypical screening rates (>1SD below the mean) with unadjusted and adjusted ORs. Compared to prepandemic, the pandemic cohort scored lower for the Total ASQ-3 (250 vs 262,  $p=.03$ ), Communication

(45 vs 49,  $p=.02$ ), and Personal-Social (49 vs 53,  $p=.03$ ) and had higher odds of having an atypical score for Fine Motor (2.2, 95%CI 1.2 to 4.2;  $p=.01$ ), with males more likely than females to have an atypical score for Communication (2.2, 95%CI 1.2 to 4.0;  $p=.03$ ) and Fine Motor (2.3, 95%CI 1.0 to 5.0;  $p=.04$ ). For the transitional cohort, the duration of pandemic exposure was negatively associated with the Total ( $p=.048$ ), Communication ( $p=.02$ ), and Personal-Social ( $p=.03$ ) scores. On average, for every 30 days spent during the pandemic, scores dropped by 0.6 points for the Total ASQ-3, 0.3 points for Communication, and 0.2 points for Personal-Social.

**Conclusions:** Our findings suggest a negative association of the COVID-19 pandemic with child development, especially for emerging language skills. While these effects were modest at the individual level, the population effects are potentially large given the universal reach of the pandemic with important educational implications.