INTRODUCTION
Congenital Zika Syndrome (CZS) is a pervasive neurodevelopmental disorder characterized by substantial deficits in motor, cognitive, and social domains. Microcephaly, which refers to a significant reduction in head circumference at birth of at least 2 standard deviations below the mean for gestational age and gender [1], is a prevalent developmental issue found in children with CZS. Previous studies have determined that the severity of microcephaly is strongly associated with poorer cognitive outcomes of children with CZS [2].

METHODS
PARTICIPANTS: Participants consisted of 59 children (42.4% male; 24-46 months) with CZS from Recife, Brazil. Participants were drawn from the Semear study carried out by RTI International and the Aliança Ventura Foundation.

MICROCEPHALY: We determined severity of microcephaly based on the number of standard deviations that participants’ head circumference at birth (range: 25-32 cm) were below norm values (range: 1.9-7.4 standard deviations).

ATTENTION VIDEO TASK: Participants were shown a 15-second video recording of a small boy using a tablet while researchers measured their behavioral looking. Behavioral codes consisted of consecutive R-spikes. For every behavioral looking episode, we determined periods of HR intervals. Interrater-reliability was good at .89 (SD = .05).

RESULTS
Descriptives:

HYPOTHESES
Hypothesis 1: There will be a relationship between severity of microcephaly and behaviorally-defined sustained attention (BDSA).

Hypothesis 2: There will be a relationship between severity of microcephaly and heart rate-defined sustained attention (HRDSA).

DISCUSSION
We did not find support for our hypothesized relationship between the severity of microcephaly and both behavioral (BDSA) and physiological (HRDSA) measures of sustained attention. A possible reason might be a restriction of range issue, in that all participants in the current sample had severe microcephaly that might have limited our ability to detect an association between microcephaly severity and sustained attention. It might also be possible that sustained attention would not differ beyond a critical threshold of microcephaly severity.

Our results indicated a significant relationship between BDSA and HRDSA, suggesting that BDSA is a sensitive and valid physiological measure of behavior for this clinical population. This supports the need for using HRDSA to assess and monitor the development of sustained attention in children with CZS. Specifically, HRDSA may be advantageous over BDSA because individuals with CSZ often have visual impairments, which may preclude or confound the use of behavioral looking measures; HRDSA is potentially more resource-efficient given that behavioral looking approaches are time-intensive and require substantial training.

FUTURE DIRECTIONS
HRDSA could be used to map out developmental trajectories of attention in individuals with CZS. It will be beneficial to extend this current work into a longitudinal study to better understand how HRDSA changes with development in the current sample.

We focused on the Attention Video task for this study. HRDSA could be determined for other tasks to better appreciate how HRDSA might differ across sensory domains and stimuli in CZS. Potential future directions include investigating HRDSA during name calls which could extend our understanding to the auditory domain, and during parent-child interactions, which would provide insight into visual attention during naturalistic situations.

REFERENCES

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