Participants were part of an ongoing longitudinal research study examining long-term effects of prenatal drug exposure on visuospatial working memory networks during adolescence. The impact of prenatal drug exposure during early childhood has been well documented, with observational studies showing decreased visuomotor speed and efficiency accessing an internal spatial map during the school-age years. Findings from these studies have been corroborated by functional magnetic resonance imaging (fMRI) studies, which have shown reductions in left prefrontal cortex (PFC) activity in adolescents with a history of prenatal drug exposure (Hurt et al., 2008).

**METHODS**

Participants

Participants were part of an ongoing longitudinal research study examining long-term effects of prenatal drug exposure. Thirty-two African American adolescents between 12 and 15 years of age participated in the study. Four participants were left-handed (1 exposed, 3 non-exposed). One non-exposed participant was excluded due to excessive motor activity, and the non-exposed group was drawn from a comparison group recruited from the same local community.

**RESULTS**

Behavioral Data

An unpaired measures ANOVA was used to compare accuracy and reaction time between groups using a 2 Group (Exposed, Non-exposed) x 2 Task (Control, VSWM) design. The prenatal drug-exposed group exhibited significantly greater deactivations in the right prefrontal, left cuneus, and left lingual gyrus during the working memory task.

**SUMMARY & DISCUSSION**

Regions in the frontoparietal network commonly recruited during visuospatial working memory paradigms were activated in both drug-exposed and non-exposed groups. Group differences emerged in the right prefrontal gyrus, left cuneus, and left lingual gyrus suggesting that the drug-exposed group was less capable of engaging regions associated with response preparation and perceptual attention in working memory compared to the non-exposed group.

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**REFERENCES**


