**Supplementary Material**

**Supplement 1*.*** *Operationalization of deprivation at the neighborhood level.* At the neighborhood level, deprivation is operationalized as a lack of resources, enrichment, and stimulation necessary for adaptive development (Vargas et al., 2020). This definition is consistent with individual-level operationalizations of deprivation, which focus on individual level experiences involving social and cognitive stimulation (e.g., child neglect, which can reflect reductions in social and cognitive stimulation) (Machlin et al., 2019; McLaughlin et al., 2019). Work on neighborhood-level deprivation has found alterations in prefrontal structure (Taylor et al., 2020; Vargas et al., 2020) and relations to both higher order and sensorimotor functional systems (Rakesh et al., 2021). In the current study, the Area Deprivation Index is used to operationalize a lack of resources, enrichment, and stimulation necessary for adaptive development. The index is comprised of 17 variables: % population aged 25 years or older with less than 9 years of education, % population aged 25 years or older with at least a high school diploma, % employed population aged 16 years or older in white-collar occupations, median family income in US dollars, income disparity, % families below federal poverty level, % population below 150% of federal poverty level, % civilian labor force population aged 16 years and older who are unemployed, median home value in US dollars, median gross rent in US dollars, median monthly mortgage in US dollars, % owner occupied housing units, % occupied housing units without complete plumbing., % single-parent households with children younger than 18, % households without a motor vehicle, % households without a telephone, % households with more than 1 person per room. These variables all have bearing on availability of educational, financial, and household resources that are necessary for healthy child development.

Notably, none of these variables assesses area crime levels. Indeed, neighborhood crime and deprivation are correlated moderately in this sample (r=.3; Figure 1). Further, outside of this sample, research has shown area deprivation index does not predict increases in crime over time (Mansourihanis et al., 2024).

**Supplement 2.** See Figure 4 from (Hagler Jr et al., 2019) for ABCD imaging inclusion workflow for task and resting state imaging data.

**Supplement 3.** *Description of differences in analytic approaches stemming from model complexity.*

Aim 2 focused on indirect effects hypotheses. The analytical approach for this aim differed from the approach for aim 1, which was a less complex model examining associations of neighborhood and psychopathology symptoms. Aim 2 required indirect effect modeling in the context of a 3-level multilevel nested model. In the linear mixed model (LMM) framework, specifying random intercepts for both site and family, along with indirect effects resulted in a complex model that made it difficult for the optimization algorithm to identify a stable solution, leading to non-convergence. The three level nesting and indirect effects model created a high-dimensional parameter space, with the model needing to estimate many interdependent parameters simultaneously. As the model remained complex relative to the available data, the estimation algorithm struggled to find a stable solution.

To address this, we turned to a structural equation modeling (SEM) framework, which provides more flexibility for modeling indirect effects in hierarchical data (though only providing 2-level hierarchical modeling capability). As lavaan did not have capacity for 3-level nested models, we opted to nest by family and site was covaried for as a fixed effect (Gana & Broc, 2019). When adding complexity to the model by estimating indirect effect analyses, however, this continued to prove computationally challenging and cause convergence issues.

Given these challenges, we chose to residualize out variance due to site and family before conducting mediation analyses for aim 2. This approach preserves meaningful within-cluster variation while improving model stability, allowing us to estimate indirect effects.

**Supplement 4.** *Rationale for not including race/ethnicity* *as covariate*. Expert recommendations for responsible use and communication of race and ethnicity in ABCD data advice against including race as a covariate unless there is a clear theoretical reason for doing so (Cardenas-Iniguez & Gonzalez, 2024; Saragosa-Harris et al., 2022). Researchers are advised to avoid using race and ethnicity as proxies for social and environmental forces; rather, researchers are encouraged to directly measure the variables that they theorize are driving race disparities in brain and mental health outcomes (Cardenas-Iniguez & Gonzalez, 2024). Using race and ethnicity as covariates by default can inadvertently support harmful views that races are “biologically different” (Cardenas-Iniguez & Gonzalez, 2024), when in fact, work has found a significant portion of observed gray matter volume differences reflect racial disparities in adverse experiences (Dumornay et al., 2023). Further, including race and ethnicity as a covariate violates the assumptions of our theoretical causal framework (Cardenas-Iniguez & Gonzalez, 2024). As conceptualized in the current study, race can lead to disadvantage (including neighborhood disadvantage) which can then predict brain and mental health outcomes (Dumornay et al., 2023). As our predictors of interest lie in the causal pathway of race to brain and mental health, co-varying for race would result in overadjustment and obscure our ability to estimate the link of neighborhood, brain and mental health. Instead, consistent with expert recommendations, our study represents an attempt to further understand upstream drivers of race disparities in mental health outcomes (Cardenas-Iniguez & Gonzalez, 2024; Saragosa-Harris et al., 2022). We did not have hypotheses specific to race, or how race might modify observed links, and these lie questions lie outside the scope of the current study. Future work is needed to more comprehensively assess social and environmental forces driving race-related health disparities.

**Supplement 5.** *Description of sensitivity analyses with parent-reported neighborhood safety from crime.* To ensure robustness, we ran sensitivity analyses with this parent-reported safety from crime measure. Results were similar as county violent crime and youth self-report results. Indirect effects were observed through amygdala to cingulate opercular connectivity for PLEs and externalizing symptoms, amygdala to sensorimotor connectivity for attention difficulties and PLEs, and within-visual network connectivity for PLEs (though not all results were consistent, i.e., indirect effects through within-retrosplenial connectivity for PLEs were also observed). These sensitivity analyses suggest considerable convergence across crime measures.

**Supplement 6.** *Methods for sensitivity analyses with additional life events and exposure covariates.*

Life events.At year 1 follow up, children completed the 26-item Life Events Scale where events are endorsed and subsequently rated as “*mostly good*” or “*mostly bad*” (Hoffman et al., 2019). Example events include “*Someone in my family died*” and “*was a victim of crime/violence/assault*.” A sum score of total number of lifetime events was used, with higher scores reflecting higher endorsement of event exposure.

Exposure to a traumatic event. The Parent Diagnostic Interview for DSM-5 Kiddie Schedule for Affective Disorders and Schizophrenia (KSADs) was completed at baseline, assessing for dichotomous yes/no exposure to 17 categories of potentially traumatic events (e.g., sudden death of a loved one, car accident). A sum score of total number of events was used, with higher scores reflecting higher endorsement of exposures.

*Results.* Results remained largely consistent in magnitude and direction after co-varying for life events and trauma exposure (see Supplementary Table 3).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Sensitivity analysis  co-variates | A path | B path | C path\* | Indirect effect (IE) |
| β, se, z, p | β, se, z, p | β, se, z, p | β, se, z, p |
| **ATTENTION SYMPTOMS** | | | | | |
| Amygdala-sensorimotor (M) | Neighborhood safety from crime self-report | .03, .01, 2.48, .01 | -.03, .01, -2.52, .01 | -.10, .01, -7.83, <.001 | -.001, .000, -1.76, .079 |
| Traumatic events endorsed | -- | -- | .01, .01, .57, .57 | -- |
| Life events endorsed | -- | -- | .09, .004, 21.63, <.001 | -- |
| Amygdala-dorsal attention | County-level number of violent crimes | -.08, .01, -5.96, <.001 | .03, .01, 3.65, <.001 | .001, .01, .10, .92 | -.002, .001, -3.44, .001 |
| Traumatic events endorsed | -- | -- | .01, .01, .67, .50 | -- |
| Life events endorsed | -- | -- | .07, .003, 21.92, <.001 | -- |
| Within-default | Neighborhood safety from crime self-report | .02, .01, 2.33, .02 | -.03, .01, -2.78, .005 | -.08, .01, -8.27, <.001 | -.001, .000, -1.81, .07 |
| Traumatic events endorsed | -- | -- | .004, .01, .53, .60 | -- |
| Life events endorsed | -- | -- | .20, .01, 20.74, <.001 | -- |
| Executive function | Tract-level area deprivation index | -.07, .01, -5.65, <.001 | -.04, .01, -3.70, <.001 | .03, .01, 3.02, .003 | .003, .001, 2.93, .003 |
| Traumatic events endorsed | -- | -- | .003, .01, .36, .72 | -- |
| Life events endorsed | -- | -- | .06, .003, 20.58, <.001 | -- |
| **EXTERNALIZING SYMPTOMS** | | | | | |
| Amygdala-Cingulate Opercular | Neighborhood safety from crime self-report | .05, .01, 3.76, <.001 | -.02, .01, -2.15, .03 | -.06, .01, -6.28, <.001 | -.001, .001, -1.65, .10 |
| Traumatic events endorsed | -- | -- | .01, .01, 1.39, .16 | -- |
| Life events endorsed | -- | -- | .20, .01, 18.97, <.001 | -- |
| County-level number of violent crimes | -.09, .01, -8.31, <.001 | -.03, .01, -2.43, .02 | -.02, .01, -2.22, .03 | .002, .001, 2.32, .02 |
| Traumatic events endorsed | -- | -- | .01, .01, 1.47, .14 | -- |
| Life events endorsed | -- | -- | .07, .004, 19.00, <.001 | -- |
| Amygdala-dorsal attention | County-level number of violent crimes | -.08, .01, -5.95, <.001 | .02, .01, 2.26, .02 | -.02, .01, -1.90, | -.002, .001, -2.13, .03 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.49, .14 | -- |
| Life events endorsed | -- | -- | .07, .01, -1.90, .06 | -- |
| Within-Visual | County-level number of violent crimes | -.07, .01, -8.77, <.001 | -.02, .01, -2.10, .04 | -.02, .01, -2.20, .03 | .002, .001, 1.97, .048 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.48, .14 | -- |
| Life events endorsed | -- | -- | .07, .004, 18.95, <.001 | -- |
| Executive function | Tract-level area deprivation index | -.07, .01, -5.66, <.001 | -.02, .01, -1.644, .1 | .03, .01, 3.46, .001 | .001, .001, 1.50, .14 |
| Traumatic events endorsed | -- | -- | .01, .01, 1.26, .21 | -- |
| Life events endorsed | -- | -- | .07, .004, 18.47, <.001 | -- |
| **INTERNALIZING SYMPTOMS** | | | | | |
| Within-default | Neighborhood safety from crime self-report | .02, .01, 2.33, .02 | -.03, .01, -2.82, .01 | -.05, .01, -5.04, <.001 | -.001, .000, -2.01, .04 |
| Traumatic events endorsed | -- | -- | -.01, .01, -.65, .51 | -- |
| Life events endorsed | -- | -- | .21, .01, 22.38, <.001 | -- |
| Executive function | Tract-level area deprivation index | -.07, .01, -5.65, <.001 | -.04, .01, -3.42, .001 | .02, .01, 1.44, .15 | .002, .001, 2.71, .007 |
| Traumatic events endorsed | -- | -- | -.01, .01, -.52, .60 | -- |
| Life events endorsed | -- | -- | .09, .004, 22.2, <.001 | -- |
| **PLEs** | | | | | |
| Amygdala-sensorimotor (M) | Neighborhood safety from crime self-report | .03, .01, 2.48, .01 | -.02, .01, -2.94, .003 | -.05, .01, -5.49, <.001 | -.001, .000, -1.83, .067 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.31, .19 | -- |
| Life events endorsed | -- | -- | .06, .003, 18.67, <.001 | -- |
| Within-Visual | Neighborhood safety from crime self-report | .04, .01, 3.76, <.001 | -.04, .01, -6.05, <.001 | -.05, .01, -5.44, <.001 | -.002, .001, -3.45, .001 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.36, .18 | -- |
| Life events endorsed | -- | -- | .18, .01, 18.81, <.001 | -- |
| County-level number of violent crimes | -.07, .01, -8.79, <.001 | -.06, .01, -5.61, <.001 | .03, .01, 3.36, .001 | .004, .001, 4.66, <.001 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.55, .12 | -- |
| Life events endorsed | -- | -- | .06, .003, 19.47, <.001 | -- |
| Within-retrosplenial temporal | Tract-level area deprivation index | -.04, .01, -3.97, <.001 | -.07, .01, -4.72, <.001 | .03, .01, 2.74, .006 | .003, .001, 3.08, .002 |
| Traumatic events endorsed | -- | -- | .02, .02, 1.32, .19 | -- |
| Life events endorsed | -- | -- | .27, .01, 18.79, <.001 | -- |
| Within-dorsal attention | Tract-level area deprivation index | -.03, .01, -2.95, .003 | -.03, .01, -2.93, .003 | .02, .01, 2.93, .003 | .001, .000, 1.90, .06 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.34, .18 | -- |
| Life events endorsed | -- | -- | .06, .003, 18.75, <.001 | -- |
| Within-default mode | Neighborhood safety from crime self-report | .02, .01, 2.33, .02 | -.05, .01, -5.22, <.001 | -.05, .01, -5.63, <.001 | -.001, .000, -2.20, .03 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.45, .15 | -- |
| Life events endorsed | -- | -- | .18, .01, 18.98, <.001 | -- |
| Amygdala-Cingulate Opercular | Tract-level area deprivation index | -.04, .01, -3.73, <.001 | -.03, .01, -2.96, .003 | .03, .01, 2.97, .003 | .001, .001, 2.27, .02 |
| Traumatic events endorsed | -- | -- | .02, .02, 1.34, .18 | -- |
| Life events endorsed | -- | -- | .27, .01, 18.80, <.001 | -- |
| Neighborhood safety from crime self-report | .05, .01, 3.76, <.001 | -.02, .01, -3.04, .002 | -.05, .01, -5.61, <.001 | -.001, .000, -2.29, .02 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.42, .16 | -- |
| Life events endorsed | -- | -- | .18, .01, 18.99, <.001 | -- |
| Threat Objective | -.09, .01, -8.31, <.001 | -.02, .01, -2.74, .01 | .03, .01, 3.66, <.001 | .002, .001, 2.62, .01 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.54, .12 | -- |
| Life events endorsed | -- | -- | .06, .003, 19.48, <.001 | -- |
| Amygdala-Salience | County-level number of violent crimes | -.06, .01, -5.43, <.001 | -.03, .01, -3.42, .001 | .03, .01, 3.77, <.001 | .001, .001, 2.83, .005 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.51, .13 | -- |
| Life events endorsed | -- | -- | .06, .003, 19.51, <.001 | -- |
| Amygdala-dorsal attention | County-level number of violent crimes | -.08, .01, -5.91, <.001 | .02, .01, 1.93, .05 | .03, .01, 4.01, <.001 | -.001, .001, -1.77, .08 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.54, .12 | -- |
| Life events endorsed | -- | -- | .06, .003, 19.50, <.001 | -- |
| Executive function | Tract-level area deprivation index | -.06, .01, -5.64, <.001 | -.03, .01, -3.04, .002 | .02, .01, 2.68, .007 | .002, .001, 2.69, .007 |
| Traumatic events endorsed | -- | -- | .02, .01, 1.37, .17 | -- |
| Life events endorsed | -- | -- | .06, .003, 18.46, <.001 | -- |

**Supplemental Table 3. Sensitivity analyses controlling for endorsed childhood trauma events at baseline, and stressful life events at year 1. \* In the case of traumatic events and life events endorsed covariates, the covariate statistics are reported for C path analyses of neighborhood predicting psychopathology symptoms.**

**Supplement 7.** *Supplemental table presenting originally pre-registered indirect effect analyses.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Measure | Dimension | | A path | | B path | | | C path | Indirect effect (IE) |
| β, se, z, p | | β, se, z, p | | | β, se, z, p | β, se, z, p |
| **INTERNALIZING** | | | | | | | | | |
| Amygdala-Fronto-Parietal | Tract-level area deprivation index | | -.01, .01, -1.06, .29 | | .001, .01, .14, .89 | | | .02, .01, 2.39, .017 | .000, .000, -.10, .92 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Cingulate Opercular | Tract-level area deprivation index | | -.04, .01, -3.47, .001 | | -.02, .01, -1.57, .12 | | | .02, .01, 2.34, .02 | .001, .000, 1.38, .17 |
| Neighborhood safety from crime  self-report | | .04, .01, 3.95, <.001 | | -.02, .01, -11.57, .12 | | | -.07, .01, -7.41, <.001 | -.001, .000, -1.42, .16 |
| Amygdala-Default Mode | Tract-level area deprivation index | | -.03, .01, -3.07, .002 | | .002, .01, .20, .85 | | | .02, .01, 2.40, .016 | .000, .000, -.19, .85 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Sensorimotor (M) | Tract-level area deprivation index | | -.02, .01, -1.70, .09 | | -.02, .01, -1.75, .08 | | | .02, .01, 2.37, .018 | .000, .000, 1.14, .26 |
| Neighborhood safety from crime  self-report | | .03, .01, 3.05, .002 | | -.02, .01, -1.75, .08 | | | -.07, .01, -7.44, <.001, | -.001, .000, -1.47, .14 |
| Within-Retrosplenial Temporal | Tract-level area deprivation index | | -.04, .01, -4.46, <.001 | | -.02, .01, -1.93, .05 | | | .02, .01, 2.32, .02 | .001, .001, 1.71, .09 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Ventral Attention | Tract-level area deprivation index | | -.02, .01, -2.17, .03 | | .01, .01, .48, .63 | | | .02, .01, 2.39, .017 | .000, .000, -.43, .67 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Visual | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .03, .01, 3.89, <.001 | | -.03, .01, -2.19, .029 | | | -.07, .01, -7.41,<.001 | -.001, .000, -1.84, .065 |
| Within-Cingulo-Parietal | Tract-level area deprivation index | | -.03, .01, -3.39, .001 | | .01, .01, .36, .72 | | | .02, .01, 2.40, .017 | .00, .00, -.34, .73 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Default | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .02, .01, 2.74, .006 | | -.04, .01, -3.31, .001 | | | -.07, .01, -7.41, <.001 | -.001, .000, -2.07, .038 |
| Within-Dorsal Attention | Deprivation | | -.03, .01, -3.01, .003 | | -.02, .01, -2.21, .027 | | | .02, .01, 2.32, .02 | .001, .000, 1.69, .09 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Executive function composite | Tract-level area deprivation index | | -.05, .01, -5.42, <.001 | | -.05, .01, -3.67, <.001 | | | .02, .01, 2.14, .03 | .003, .001, 2.993, .003 |
| **EXTERNALIZING** | | | | | | | | | |
| Amygdala-Fronto-Parietal | Tract-level area deprivation index | | -.01, .01, -1.06, .29 | | .01, .01, 1.00, .32 | | | .04, .01, 4.23, <.001 | .000, .000, -.60, .55 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Cingulate Opercular | Tract-level area deprivation index | | -.04, .01, -3.49, <.001 | | -.03, .01, -2.48, .01 | | | .04, .01, 4.14, <.001 | .001, .001, 1.94, .05 |
| Neighborhood safety from crime  self-report | | .04, .01, 3.95, <.001 | | -.03, .01, -2.48, .01 | | | -.08, .01, -8.08, <.001 | -.001, .001, -2.06, .04 |
| Amygdala-Default Mode | Tract-level area deprivation index | | -.03, .01, -3.08, .002 | | -.014, .01, -1.28, .20 | | | .04, .01, 4.19, <.001 | .000, .000, 1.12, .26 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Sensorimotor (M) | Tract-level area deprivation index | | -.02, .01, -1.70, .09 | | -.02, .01, -1.89, .059 | | | .04, .01, 4.18, <.001 | .000, .000, 1.19, .23 |
| Neighborhood safety from crime  self-report | | .03, .01, 3.05, .002 | | -.02, .01, -1.89, .059 | | | -.08, .01, -8.13, <.001 | -.001, .000, -1.54, .12 |
| Within-Retrosplenial Temporal | Tract-level area deprivation index | | -.04, .01, -4.45, <.001 | | -.03, .01, -1.93, .05 | | | .04, .01, 4.09, <.001 | .001, .001, 1.72, .085 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Ventral Attention | Tract-level area deprivation index | | -.02, .01, -2.18, .029 | | -.01, .01, -1.11, .27 | | | .04, .01, 4.18, <.001 | .000, .000, .92, .36 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Visual | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .03, .01, 3.90, <.001 | | -.03, .01, -1.95, .05 | | | -.08, .01, -8.14, <.001 | -.001, .000, -1.70, .09 |
| Within-Cingulo-Parietal | Tract-level area deprivation index | | -.03, .01, -3.38, .001 | | .003, .01, .23, .82 | | | .04, .01, 4.21,<.001 | .000, .00, -.23, .83 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Default | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .02, .01, 2.74, .006 | | -.02, .01, -1.19, .24 | | | -.08, .01, -8.17, <.001 | .000, .000, -1.04, .3 |
| Within-Dorsal Attention | Tract-level area deprivation index | | -.03, .01, -3.02, .003 | | -.02, .01, -1.5, .13 | | | .04, .01, 4.18, <.001 | .001, .000, 1.30, .20 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Executive function composite | Tract-level area deprivation index | | -.05, .01, -5.44, <.001 | | -.03, .01, -2.44, .015 | | | .04, .01, 4.04, <.001 | .002, .001, 2.13, .03 |
| **ATTENTION** | | | | | | | | | |
| Amygdala-Fronto-Parietal | Tract-level area deprivation index | | -.01, .01, -1.04, .30 | | .01, .01, 1.03, .31 | | | .04, .01, 4.33, <.001 | .000, .000, -.58, .56 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Cingulate Opercular | Tract-level area deprivation index | | -.04, .01, -3.47, .001 | | -.01, .01, -.82, .41 | | | .04, .01, 4.30, <.001 | .000, .000, .76, .45 |
| Neighborhood safety from crime  self-report | | .04, .01, 3.95, <.001 | | -.01, .01, -.82, .41 | | | -.10, .01, -10.48, <.001 | .000, .000, -.79, .43 |
| Amygdala-Default Mode | Tract-level area deprivation index | | -.03, .01, -3.06, .002 | | -.001, .01, -.06, .95 | | | .04, .01, 4.32, <.001 | .000, .000, .06, .95 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Amygdala-Sensorimotor (M) | Tract-level area deprivation index | | -.02, .01, -1.70, .09 | | -.03, .01, -3.06, .002 | | | .04, .01, 4.27, <.001 | .001, .000, 1.42, .16 |
| Neighborhood safety from crime  self-report | | .03, .01, 3.06, .002 | | -.03, .01, -3.06, .002 | | | -.10, .01, -10.42, <.001 | -.001, .000, -2.11, .035 |
| Within-Retrosplenial Temporal | Tract-level area deprivation index | | -.04, .01, -4.44, <.001 | | -.02, .01, -1.29, .20 | | | .04, .01, 4.23, <.001 | .001, .001, 1.18, .24 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Ventral Attention | Tract-level area deprivation index | | -.02, .01, -2.16, .03 | | -.01, .01, -.41, .69 | | | .04, .01, 4.30, <.001 | .000, .000, .37, .71 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Visual | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .03, .01, 3.90, <.001 | | -.01, .01, -1.19, .24 | | | -.10, .01, -10.49, <.001 | .000, .000, -1.11, .27 |
| Within-Cingulo-Parietal | Tract-level area deprivation index | | -.03, .01, -3.38, .001 | | -.003, .01, -.23, .82 | | | .04, .01, 4.30, <.001 | .000, .000, .22, .83 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Within-Default | Tract-level area deprivation index | | -- | | -- | | | -- | -- |
| Neighborhood safety from crime  self-report | | .02, .01, 2.74, .006 | | -.04, .01, -3.53, <.001 | | | -.10, .01, -10.44, <.001 | -.001, .000, -2.12, .03 |
| Within-Dorsal Attention | Tract-level area deprivation index | | -.03, .01, -3.01, .003 | | -.02, .01, -1.82, .07 | | | .04, .01, 4.27, <.001 | .001, .000, 1.50, .13 |
| Neighborhood safety from crime  self-report | | -- | | -- | | | -- | -- |
| Executive function composite | Tract-level area deprivation index | | -.05, .01, -5.42, <.001 | | -.06, .01, -5.55, <.001 | | | .04, .01, 3.94, <.001 | .003, .001, 3.76, <.001 |
| **PLEs** | | | | | | | | | |
| Amygdala-Fronto-Parietal | | Tract-level area deprivation index | | -.01, .01, -1.06, .29 | | -.02, .01, -2.07, .038 | .03, .01, 3.81, <.001 | | .000, .000, .86, .39 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Amygdala-Cingulate Opercular | | Tract-level area deprivation index | | -.04, .01, -3.47, .001 | | -.03, .01, -22.90, .004 | .03, .01, 3.75, <.001 | | .001, .000, 2.15, .03 |
| Neighborhood safety from crime  self-report | | .04, .01, 3.95, <.001 | | -.03, .01, -2.90, .004 | -.07, .01, -7.60, <.001 | | -.001, .000, -2.32, .02 |
| Amygdala-Default Mode | | Tract-level area deprivation index | | -.03, .01, -3.09, .002 | | -.003, .01, -.33, .74 | .03, .01, 3.83, <.001, .95 | | .000, .000, .31, .75 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Amygdala-Sensorimotor (M) | | Tract-level area deprivation index | | -.02, .01, -1.69, .09 | | -.03, .01, -3.62, <.001 | .03, .01, 3.77, <.001 | | .001, .000, 1.49, .14 |
| Neighborhood safety from crime  self-report | | .03, .01, 3.06, .002 | | -.03, .01, -4.93, <.001 | -.07, .01, -7.59, <.001 | | -.001, .000, -2.32, .02 |
| Within-Retrosplenial Temporal | | Tract-level area deprivation index | | -.04, .01, -4.45, <.001 | | -.05, .01, -4.97, <.001 | .03, .01, 3.56, <.001 | | .002, .001, 3.27, .001 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Within-Ventral Attention | | Tract-level area deprivation index | | -.02, .01, -2.15, .03 | | -.03, .01, -2.89, .004 | .03, .01, 3.73, <.001 | | .001, .000, 1.68, .09 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Within-Visual | | Tract-level area deprivation index | | -- | | -- | -- | | -- |
| Threat self-report | | .03, .01, 3.91, <.001 | | -.06, .01, -5.90, <.001 | -.07, .01, -7.50, <.001 | | -.002, .001, -3.24, .001 |
| Within-Cingulo-Parietal | | Tract-level area deprivation index | | -.03, .01, -3.40, .001 | | -.00, .01, -.04, .97 | .03, .01, 3.82, <.001 | | .000, .000, .04, .97 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Within-Default | | Tract-level area deprivation index | | -- | | -- | -- | | -- |
| Neighborhood safety from crime  self-report | | .02, .01, 2.74, .006 | | -.06, .01, -5.25, <.001 | -.07, .01, -7.59, <.001 | | -.001, .000, -2.36, .018 |
| Within-Dorsal Attention | | Tract-level area deprivation index | | -.03, .01, -3.02, .003 | | -.03, .01, -3.43, .001 | .03, .01, 3.71, <.001 | | .001, .000, 2.19, .028 |
| Neighborhood safety from crime  self-report | | -- | | -- | -- | | -- |
| Executive function composite | | Tract-level area deprivation index | | -.05, .01, -5.38, <.001 | | -.05, .01, -4.02, <.001 | .03, .01, 3.42, .001 | | .003, .001, 3.23, .001 |

**Supplemental Table 1. Statistics for indirect effect models run for originally pre-registered analyses of tract-level area deprivation index and neighborhood safety from crime self-report. Resting state analyses were run only for variables that showed associations with neighborhood predictors.**

**Supplement 8.** *Table presenting analyses of links of neighborhood (tract-level area deprivation index, neighborhood safety from crime self-report, and county-level number of crimes), functional and resting state outcomes.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure | Dimension | β | se | z | p |
| **DEPRIVATION-SPECIFIC HYPOTHESES** | | | | | |
| Incorrect stop versus go caudate | Tract-level area deprivation index | -.02 | .01 | -1.10 | .27 |
| Incorrect stop versus go rostral middle frontal | Tract-level area deprivation index | -.01 | .01 | -.58 | .56 |
| Incorrect stop versus go pars striangularis | Tract-level area deprivation index | -.02 | .01 | -1.67 | .10 |
| Incorrect stop versus go pars orbitalis | Tract-level area deprivation index | -.01 | .01 | -1.05 | .30 |
| Incorrect stop versus go pars opercularis | Tract-level area deprivation index | -.20 | .01 | -1.39 | .17 |
| Incorrect stop versus go caudal middle frontal | Tract-level area deprivation index | -.01 | .01 | -.70 | .48 |
| Executive function composite | Tract-level area deprivation index | -.07 | .01 | -5.07 | <.001 |
| **THREAT-SPECIFIC HYPOTHESES** | | | | | |
| N-back amygdala negative versus neutral faces contrast | Neighborhood safety from crime  self-report | -.01 | .01 | -.79 | .43 |
| N-back putamen positive versus neutral faces contrast | Neighborhood safety from crime  self-report | .01 | .01 | .63 | .53 |
| Adaptation to Emotional Conflict | Neighborhood safety from crime  self-report | -.003 | .02 | -.17 | .86 |
| **RESTING-STATE EXPLORATORY** | | | | | |
| Amygdala-Auditory | Tract-level area deprivation index | .03 | .01 | 1.90 | .06 |
| Neighborhood safety from crime  self-report | .001 | .01 | .12 | .91 |
| County-level number of violent crimes | .00 | .00 | 1.69 | .09 |
| Amygdala-Cingulate Opercular | Tract-level area deprivation index | -0.05 | 0.01 | -4.0 | <.001 |
| Neighborhood safety from crime  self-report | 0.04 | 0.01 | 3.43 | 0.001 |
| County-level number of violent crimes | -.000 | .000 | -7.45 | <.001 |
| Amygdala-Cingulate Parietal | Tract-level area deprivation index | 0.03 | 0.01 | 1.81 | 0.07 |
| Neighborhood safety from crime  self-report | 0.01 | 0.01 | 0.78 | 0.44 |
| County-level number of violent crimes | .000 | .000 | 1.56 | .12 |
| Amygdala-Default Mode | Tract-level area deprivation index | -0.05 | 0.01 | -3.56 | <.001 |
| Neighborhood safety from crime  self-report | 0.03 | 0.01 | 2.18 | 0.03 |
| County-level number of violent crimes | -.000 | .000 | -2.68 | .007 |
| Amygdala-Dorsal Attention | Tract-level area deprivation index | 0.01 | 0.01 | 0.55 | 0.58 |
| Neighborhood safety from crime  self-report | -0.01 | 0.01 | -1.13 | 0.26 |
| County-level number of violent crimes | -.000 | .000 | -5.16 | <.001 |
| Amygdala-Frontoparietal | Tract-level area deprivation index | -0.04 | 0.01 | -2.91 | 0.004 |
| Neighborhood safety from crime  self-report | 0.01 | 0.01 | 0.66 | 0.51 |
| County-level number of violent crimes | .000 | .000 | 1.79 | .07 |
| Amygdala-Retrosplenial Temporal | Tract-level area deprivation index | 0.02 | 0.01 | 1.58 | 0.11 |
| Neighborhood safety from crime  self-report | -0.01 | 0.01 | -0.72 | 0.47 |
| County-level number of violent crimes | -.000 | .000 | -.33 | .74 |
| Amygdala-Salience | Deprivation | -0.02 | 0.01 | -1.23 | 0.22 |
| Neighborhood safety from crime  self-report | 0.01 | 0.01 | 0.78 | 0.44 |
| County-level number of violent crimes | -.000 | .000 | -2.89 | .004 |
| Amygdala-Sensorimotor (H) | Tract-level area deprivation index | -0.03 | 0.01 | -2.18 | 0.03 |
| Neighborhood safety from crime  self-report | -0.01 | 0.01 | -0.94 | 0.35 |
| County-level number of violent crimes | .000 | .000 | .21 | .84 |
| Amygdala-Sensorimotor (M) | Tract-level area deprivation index | -0.04 | 0.01 | -2.74 | 0.006 |
| Neighborhood safety from crime  self-report | 0.05 | 0.01 | 3.76 | <.001 |
| County-level number of violent crimes | -.000 | .000 | -2.16 | .03 |
| Amygdala-Ventral Attention | Tract-level area deprivation index | -0.003 | 0.01 | -0.20 | 0.84 |
| Neighborhood safety from crime  self-report | -0.01 | 0.01 | -0.83 | 0.41 |
| County-level number of violent crimes | .000 | .000 | .93 | .35 |
| Within-Auditory | Tract-level area deprivation index | -0.01 | 0.01 | -0.93 | 0.35 |
| Neighborhood safety from crime  self-report | 0.02 | 0.01 | 1.74 | 0.08 |
| County-level number of violent crimes | .000 | .000 | .58 | .56 |
| Within-Fronto-Parietal | Tract-level area deprivation index | -0.01 | 0.01 | -0.64 | 0.52 |
| Neighborhood safety from crime  self-report | 0.02 | 0.01 | 1.89 | 0.06 |
| County-level number of violent crimes | .000 | .000 | .74 | .46 |
| Within-Retrosplenial Temporal | Tract-level area deprivation index | -0.08 | 0.01 | -5.71 | <.001 |
| Neighborhood safety from crime  self-report | 0.03 | 0.01 | 2.26 | 0.02 |
| County-level number of violent crimes | -.000 | .000 | -1.84 | .07 |
| Within-Salience | Tract-level area deprivation index | -0.03 | 0.01 | -2.26 | 0.02 |
| Neighborhood safety from crime  self-report | -0.00 | 0.01 | -0.13 | 0.90 |
| County-level number of violent crimes | -.000 | .000 | -1.78 | .07 |
| Within-Sensorimotor (H) | Tract-level area deprivation index | 0.02 | 0.01 | 1.58 | 0.11 |
| Neighborhood safety from crime  self-report | -0.02 | 0.01 | -1.37 | 0.17 |
| County-level number of violent crimes | .000 | .000 | 6.90 | <.001 |
| Within-Sensorimotor (M) | Tract-level area deprivation index | -0.02 | 0.01 | -1.76 | 0.08 |
| Neighborhood safety from crime  self-report | 0.02 | 0.01 | 1.73 | 0.09 |
| County-level number of violent crimes | .000 | .000 | 1.26 | .21 |
| Within-Ventral Attention | Tract-level area deprivation index | -0.05 | 0.01 | -3.34 | 0.001 |
| Neighborhood safety from crime  self-report | 0.025 | 0.01 | 1.85 | 0.07 |
| County-level number of violent crimes | -.000 | .000 | -1.31 | .19 |
| Within-Visual | Tract-level area deprivation index | 0.03 | 0.01 | 1.90 | 0.06 |
| Neighborhood safety from crime  self-report | 0.04 | 0.01 | 3.69 | <.001 |
| County-level number of violent crimes | -.000 | .000 | -6.46 | <.001 |
| Within-Cingulo-Parietal | Tract-level area deprivation index | -0.06 | 0.01 | -4.09 | <.001 |
| Neighborhood safety from crime  self-report | 0.02 | 0.01 | 1.89 | 0.06 |
| County-level number of violent crimes | .000 | .000 | 2.25 | .02 |
| Within-Default | Tract-level area deprivation index | -0.002 | 0.01 | -0.14 | 0.89 |
| Neighborhood safety from crime  self-report | 0.04 | 0.01 | 3.22 | 0.001 |
| County-level number of violent crimes | -.000 | .000 | -.78 | .44 |
| Within-Dorsal Attention | Tract-level area deprivation index | -0.06 | 0.01 | -4.05 | <.001 |
| Neighborhood safety from crime  self-report | 0.03 | 0.01 | 2.15 | 0.03 |
| County-level number of violent crimes | -.000 | .000 | -.98 | .33 |

**Supplemental Table 2. Associations of neighborhood, functional task and resting state measures. County-level violent crime number statistics are unstandardized.**

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