**Supplementary Results**

Additional linear regressions were performed to compare the current quantitative anisotropy (QA) results to results obtained with generalized fractional anisotropy (GFA), which is a commonly used diffusion metric. Six outliers (i.e., GFA values of more than 3 standard deviations from the mean) were removed from the stria terminalis/fornix GFA analyses. The six participants were retained for analyses of the cingulum bundle and uncinate fasciculus. RM-ANCOVAs were run for each tract with hemisphere as a within-subjects factor and neighborhood disadvantage as a covariate. There was not a significant interaction between hemisphere and neighborhood disadvantage [cingulum bundle: *F*(1,295) = 1.934, *p* > 0.05; uncinate fasciculus: *F*(1,273) = 0.015, *p* > 0.05; stria terminalis/fornix: *F*(1,232) = 0.514, *p* > 0.05]. Therefore, GFA was averaged across each hemisphere (i.e., across the left and right tract) to produce three GFA values, one for each tract of interest. These values were used in subsequent analyses. Multiple comparison correction was accomplished using a Bonferroni correction for the three regressions performed in these analyses, resulting in a critical p-value of 0.017 (0.05/3 = 0.017).

Linear regressions predicting GFA of the cingulum bundle (*F*(4,295) = 3.724, *p* = 0.006); uncinate fasciculus (*F*(4,273) = 21.041, *p* < 0.001); and stria terminalis/fornix (*F*(4,232) = 39.960, *p* < 0.001) were significant (Supplementary Table S4). Adolescent neighborhood disadvantage was a significant predictor of young adult GFA in the cingulum bundle (β = 0.18, *p* = 0.003). Specifically, GFA increased as neighborhood disadvantage increased. Adolescent neighborhood disadvantage was not a significant predictor of GFA in the uncinate fasciculus or the stria terminalis/fornix (both *p*s > 0.05). Violence exposure was not a significant predictor of GFA in any of the three tracts (all *p*s > 0.05).

**Supplementary Discussion**

We observed both similarities and differences in the QA and GFA analyses that were completed. Analyses with both QA and GFA consistently showed no relationship between these diffusion metrics and violence exposure. In contrast, QA and GFA showed different relationships with neighborhood disadvantage. Specifically, QA showed a negative relationship with neighborhood disadvantage in all three tracts (i.e., cingulum bundle, uncinate fasciculus, and stria terminalis/fornix). In contrast, GFA showed no relationship to neighborhood disadvantage in the uncinate fasciculus and stria/terminalis, and showed a positive relationship with neighborhood disadvantage in the cingulum bundle. The consistency of QA findings across the three tracts in the present investigation suggests that these results are not simply false positive findings. Additionally, results pertaining to violence exposure were consistent across tracts and across QA and GFA analyses (i.e., there was no relationship), again suggesting this is not simply a rejection of true findings. The opposite could be argued for the GFA findings. Specifically, only one track showed a significant effect (i.e., the cingulum bundle) and that effect was in a direction that was inconsistent with predictions and with prior work (Fields, 2008; McLaughlin et al., 2017; Perkins & Graham-Bermann, 2012; Sheridan & McLaughlin, 2014). One potential explanation for the difference in results between QA and GFA is that QA is better at resolving crossing fibers and handling partial volume effects, in which a single voxel falls across multiple types of tissue (e.g., white matter and CSF) that have different diffusion properties (Yeh et al., 2013, 2016). In fact, prior work suggests that QA is able to detect group differences in white matter where FA cannot (Volbers et al., 2020). More specifically, this prior research examined differences in FA and QA between those who had a favorable compared to a poor recovery from stroke (Volbers et al., 2020). They found that FA did not differ between groups in any of the examined tracts. In contrast, group differences in QA were observed. Specifically, QA was greater in the group with favorable post-stroke outcomes compared to the group with poor outcomes (Volbers et al., 2020). Further, prior work suggests that between 60-90% of white matter voxels contain more than one fiber orientation (i.e., crossing fibers) (Jeurissen et al., 2013; Yeh et al., 2018). The problem of resolving crossing fibers is further complicated by partial volume effects. Prior work has noted that voxel-based metrics, such as FA and GFA, are quite susceptible to these effects (Jeurissen et al., 2013; Yeh et al., 2018). In fact, several prior investigations using FA have reported results in the opposite direction from what was hypothesized. For example, in a study of reaction time and FA, one group found a positive relationship between reaction time and FA. This finding is the opposite of what would be expected according to the myelination hypothesis, which suggests that increased myelination (i.e., increased FA) would be associated with faster conduction and decreased reaction time (Tuch et al., 2005). Further, other work has found increased FA in the centrum semiovale in patients with Alzheimer’s Disease (Douaud et al., 2011). The authors attribute this unusual finding (i.e., increased FA in Alzheimer’s Disease) specifically to crossing fibers present in this area (Douaud et al., 2011). Similarly, the current GFA analysis found a positive relationship between GFA of the cingulum bundle and neighborhood disadvantage, which is not the directional relationship one would expect. Specifically, based on prior work (Fields, 2008; McLaughlin et al., 2017; Perkins & Graham-Bermann, 2012; Sheridan & McLaughlin, 2014), we hypothesized that neighborhood disadvantage would be linked with decreased GFA. Taken together with prior work, the present GFA analysis suggests that in this instance QA may be the more appropriate metric, as it is less impacted by crossing fibers and partial volume effects.

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| Supplementary Table S1. Results of regression models predicting QA for six tracts | | | | | | | | | | |
|  |  | F-statistic |  | *p*-value |  | β |  | t-value |  | *p*-value | |
| Left Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 23.42 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.133 |  | -2.48 |  | 0.014 | |
| Violence exposure |  |  |  |  |  | -0.102 |  | -1.87 |  | 0.062 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 24.75 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.130 |  | -2.44 |  | 0.015 | |
| Violence exposure |  |  |  |  |  | -0.115 |  | -2.12 |  | 0.035 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Left Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 7.92 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.132 |  | -2.19 |  | 0.029 | |
| Violence exposure |  |  |  |  |  | -0.040 |  | -0.659 |  | 0.510 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 5.93 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.143 |  | -2.33 |  | 0.021 | |
| Violence exposure |  |  |  |  |  | -0.041 |  | -0.662 |  | 0.508 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Left Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 7.60 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.160 |  | -2.51 |  | 0.013 | |
| Violence exposure |  |  |  |  |  | -0.061 |  | -0.948 |  | 0.344 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 8.40 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.181 |  | -2.86 |  | 0.005 | |
| Violence exposure |  |  |  |  |  | -0.060 |  | -0.938 |  | 0.349 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| *Note*: Primary analysis results: linear regressions predicting quantitative anisotropy (QA) from neighborhood disadvantage and violence exposure. F-statistics indicate the significance of each overall model. Standardized beta values are presented. Cingulum bundle n = 300, Uncinate fasciculus n = 278, Stria terminalis/fornix n = 243. | | | | | | | | | | |

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| Supplementary Table S2. Results of regressions predicting QA from family income and violence exposure for six tracts | | | | | | | | | | | |
|  |  | F-statistic |  | *p*-value |  | β |  | t-value |  | *p*-value |
| Left Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 22.21 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.140 |  | 2.53 |  | 0.012 |
| Violence exposure |  |  |  |  |  | -0.103 |  | -1.81 |  | 0.071 |
|  |  |  |  |  |  |  |  |  |  |  |
| Right Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 23.57 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.136 |  | 2.47 |  | 0.014 |
| Violence exposure |  |  |  |  |  | -0.116 |  | -2.06 |  | 0.041 |
|  |  |  |  |  |  |  |  |  |  |  |
| Left Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 7.09 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.118 |  | 1.89 |  | 0.060 |
| Violence exposure |  |  |  |  |  | -0.044 |  | -0.688 |  | 0.492 |
|  |  |  |  |  |  |  |  |  |  |  |
| Right Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 5.76 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.150 |  | 2.38 |  | 0.018 |
| Violence exposure |  |  |  |  |  | -0.043 |  | -0.668 |  | 0.505 |
|  |  |  |  |  |  |  |  |  |  |  |
| Left Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 7.62 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.212 |  | 3.20 |  | 0.002 |
| Violence exposure |  |  |  |  |  | -0.036 |  | -0.529 |  | 0.589 |
|  |  |  |  |  |  |  |  |  |  |  |
| Right Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  |
| Overall Model |  | 7.151 |  | < 0.001\* |  |  |  |  |  |  |
| Family income |  |  |  |  |  | 0.179 |  | 2.69 |  | 0.008 |
| Violence exposure |  |  |  |  |  | -0.053 |  | -0.778 |  | 0.437 |
|  |  |  |  |  |  |  |  |  |  |  |
| *Note*: Linear regressions predicting quantitative anisotropy (QA) from T1 family income and violence exposure. F-statistics indicating the significance of each overall model are reported. Standardized beta values are presented. Cingulum bundle n = 287, Uncinate fasciculus n = 266, Stria terminalis/fornix n = 232. | | | | | | | | | | | |

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| Supplementary Table S3. Results of regressions predicting QA from family income, neighborhood disadvantage, and violence exposure for six tracts | | | | | | | | | | |
|  |  | F-statistic |  | *p*-value |  | β |  | t-value |  | *p*-value | |
| Left Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 18.30 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.087 |  | 1.32 |  | 0.189 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.098 |  | -1.51 |  | 0.133 | |
| Violence exposure |  |  |  |  |  | -0.089 |  | -1.57 |  | 0.119 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Cingulum Bundle (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 19.30 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.087 |  | 1.33 |  | 0.184 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.090 |  | -1.39 |  | 0.166 | |
| Violence exposure |  |  |  |  |  | -0.104 |  | -1.82 |  | 0.069 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Left Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 6.01 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.066 |  | 0.887 |  | 0.376 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.095 |  | -1.29 |  | 0.199 | |
| Violence exposure |  |  |  |  |  | -0.031 |  | -0.480 |  | 0.632 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Uncinate Fasciculus (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 4.84 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.106 |  | 1.41 |  | 0.160 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.080 |  | -1.07 |  | 0.285 | |
| Violence exposure |  |  |  |  |  | -0.032 |  | -0.493 |  | 0.623 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Left Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 6.49 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.153 |  | 1.93 |  | 0.055 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.106 |  | -1.36 |  | 0.175 | |
| Violence exposure |  |  |  |  |  | -0.026 |  | -0.388 |  | 0.699 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Right Stria Terminalis/Fornix (QA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 6.69 |  | < 0.001\* |  |  |  |  |  |  | |
| Family income |  |  |  |  |  | 0.087 |  | 1.10 |  | 0.271 | |
| Neighborhood disadvantage |  |  |  |  |  | -0.163 |  | -2.10 |  | 0.037 | |
| Violence exposure |  |  |  |  |  | -0.038 |  | -0.565 |  | 0.572 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| *Note*: Linear regressions predicting quantitative anisotropy (QA) from T1 family income, neighborhood disadvantage, and violence exposure. F-statistics indicating the significance of each overall model are reported. Standardized beta values are presented. Cingulum bundle n = 281, Uncinate fasciculus n = 266, Stria terminalis/fornix n = 232. | | | | | | | | | | |

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| Supplementary Table S4. Results of analyses predicting GFA | | | | | | | | | | |
|  |  | F-statistic |  | *p*-value |  | β |  | t-value |  | *p*-value | |
| Cingulum Bundle (GFA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 3.724 |  | 0.006\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | 0.182 |  | 3.037 |  | 0.003\* | |
| Violence exposure |  |  |  |  |  | 0.020 |  | 0.330 |  | 0.741 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Uncinate Fasciculus (GFA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 21.041 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | -0.042 |  | -0.759 |  | 0.449 | |
| Violence exposure |  |  |  |  |  | -0.038 |  | -0.668 |  | 0.504 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| Stria Terminalis/Fornix (GFA) |  |  |  |  |  |  |  |  |  |  | |
| Overall Model |  | 39.960 |  | < 0.001\* |  |  |  |  |  |  | |
| Neighborhood disadvantage |  |  |  |  |  | 0.081 |  | 1.524 |  | 0.129 | |
| Violence exposure |  |  |  |  |  | -0.014 |  | -0.251 |  | 0.802 | |
|  |  |  |  |  |  |  |  |  |  |  | |
| *Note*: Linear regressions predicting generalized fractional anisotropy (GFA) from neighborhood disadvantage and violence exposure. F-statistics indicate the significance of each overall model. Standardized beta values are presented. Cingulum bundle n = 300, Uncinate fasciculus n = 278, Stria terminalis/fornix n = 237. Statistically significant tests are indicated with an asterisk beside the significant *p*-value (critical *p*-value = 0.017). | | | | | | | | | | |

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