

# Association between Autism Spectrum Disorder and Environmental Quality in the United States

Jianyong Wu <sup>1,\*</sup>, Alexander C. McLain <sup>2</sup>, Paul Rosile <sup>1</sup> and Darryl B. Hood <sup>1</sup>

<sup>1</sup> Division of Environmental Health Sciences, College of Public Health, The Ohio State University,  
Columbus, OH 43210, USA; rosile.1@osu.edu (P.R.); hood.188@osu.edu (D.B.H.)

<sup>2</sup> Department of Epidemiology and Biostatistics, University of South Carolina, Columbia, SC 29208 USA; mclaina@mailbox.sc.edu

\* Correspondence: wu.6255@osu.edu; Tel.: +1-614-292-2435

Table S1. The unadjusted association between ASD prevalence and explanatory variables from univariate Poisson regression models

| Explanatory variables | RR (95% CI)               |
|-----------------------|---------------------------|
| Overall EQI           | <b>1.04 (1.02 – 1.07)</b> |

|                            |                           |
|----------------------------|---------------------------|
| EQI-air                    | <b>1.06 (1.04 – 1.08)</b> |
| EQI-land                   | <b>0.98 (0.96 – 1.00)</b> |
| EQI-built                  | <b>1.02 (1.00 – 1.04)</b> |
| EQI-water                  | 0.99 (0.97 – 1.02)        |
| EQI-sociodemographic       | <b>0.95 (0.93 – 0.97)</b> |
| Mean household income      | 1.01 (0.99 – 1.03)        |
| Population density         | <b>1.03 (1.02 – 1.05)</b> |
| White (%)                  | <b>0.94 (0.92 – 0.96)</b> |
| Black (%)                  | <b>1.08 (1.06 – 1.10)</b> |
| Asian (%)                  | <b>1.02 (1.00 – 1.04)</b> |
| Hispanic or Latino (%)     | 0.99 (0.96 – 1.01)        |
| Non-Hispanic or Latino (%) | 1.01 (0.99 – 1.04)        |
| Male (%)                   | <b>0.97 (0.95 – 0.99)</b> |
| Female (%)                 | <b>1.03 (1.01 – 1.06)</b> |
| Under 5 years (%)          | <b>0.98 (0.96 – 1.00)</b> |
| 5 to 17 years (%)          | <b>0.96 (0.94 – 0.98)</b> |

Table S2. Association between ASD prevalence and environmental quality adjusted for race, gender, age and population density

| Model ID | Explanatory variables | RR (95CI)          |
|----------|-----------------------|--------------------|
| Model 1  | Overall EQI           | 1.03 (1.01 – 1.05) |
|          | Black (%)             | 1.07 (1.05 – 1.09) |

|         |                      |                    |
|---------|----------------------|--------------------|
|         | Female (%)           | 1.02 (1.00 – 1.05) |
|         | 5 to 17 years (%)    | 0.96 (0.94 – 0.98) |
|         | Population density   | 1.03 (1.01 – 1.04) |
| Model 2 | EQI-air              | 1.03 (1.01 – 1.06) |
|         | Black (%)            | 1.07 (1.05 – 1.09) |
|         | Female (%)           | 1.02 (1.00 – 1.04) |
|         | 5 to 17 years (%)    | 0.97 (0.95 – 0.99) |
|         | Population density   | 1.03 (1.01 – 1.04) |
| Model 3 | EQI-built            | 1.01 (0.99 – 1.03) |
|         | Black (%)            | 1.07 (1.05 – 1.10) |
|         | Female (%)           | 1.03 (1.00 – 1.05) |
|         | 5 to 17 years (%)    | 0.96 (0.94 – 0.98) |
|         | Population density   | 1.03 (1.01 – 1.04) |
| Model 4 | EQI-land             | 0.99 (0.97 – 1.01) |
|         | Black (%)            | 1.08 (1.05 – 1.10) |
|         | Female (%)           | 1.02 (1.00 – 1.05) |
|         | 5 to 17 years (%)    | 0.97 (0.94 – 0.99) |
|         | Population density   | 1.03 (1.01 – 1.04) |
| Model 5 | EQI-sociodemographic | 0.96 (0.94 – 0.98) |
|         | Black (%)            | 1.08 (1.06 – 1.10) |
|         | Female (%)           | 1.02 (0.99 – 1.04) |
|         | 5 to 17 years (%)    | 0.97 (0.95 – 0.99) |
|         | Population density   | 1.02 (1.00 – 1.03) |
| Model 6 | EQI-water            | 1.02 (0.99 – 1.04) |
|         | Black (%)            | 1.08 (1.06 – 1.10) |
|         | Female (%)           | 1.02 (1.00 – 1.05) |
|         | 5 to 17 years (%)    | 0.96 (0.94 – 0.98) |
|         | Population density   | 1.03 (1.01 – 1.04) |

---

Figure S1. Association between ASD prevalence and the air index from the geographically weighted regression model

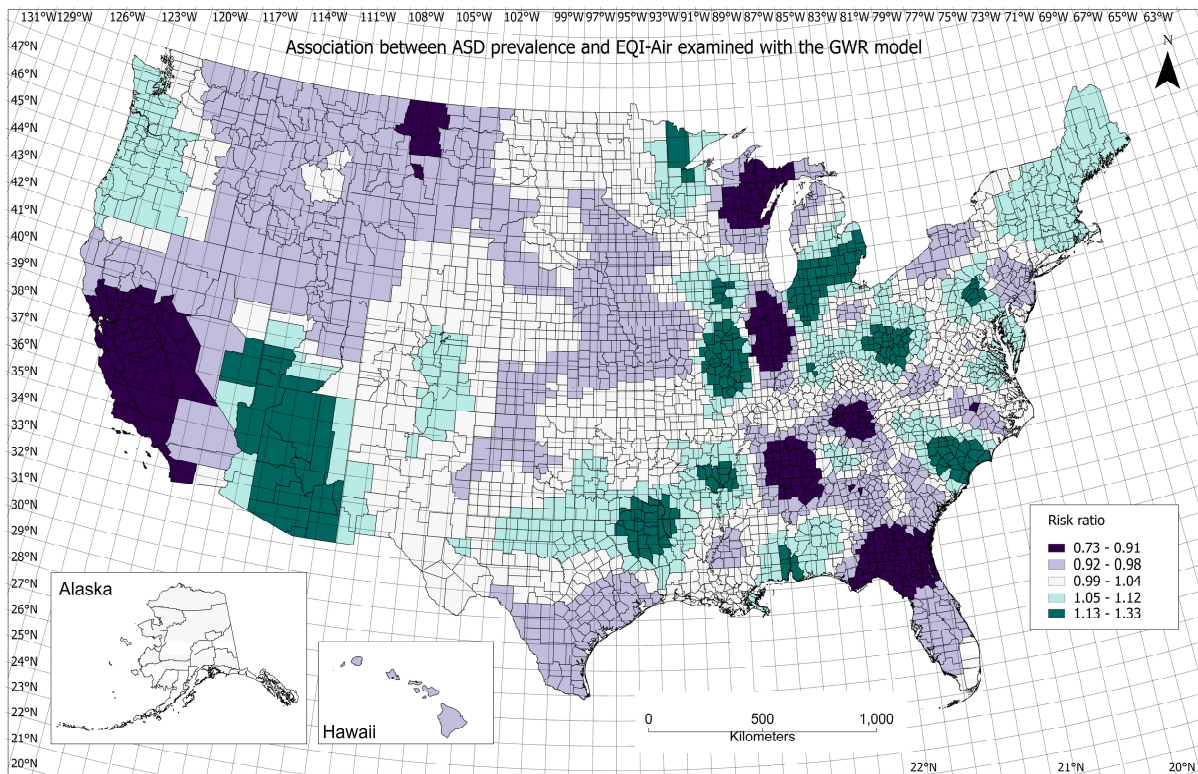




Figure S2. Association between ASD prevalence and the built index from the geographically weighted regression model

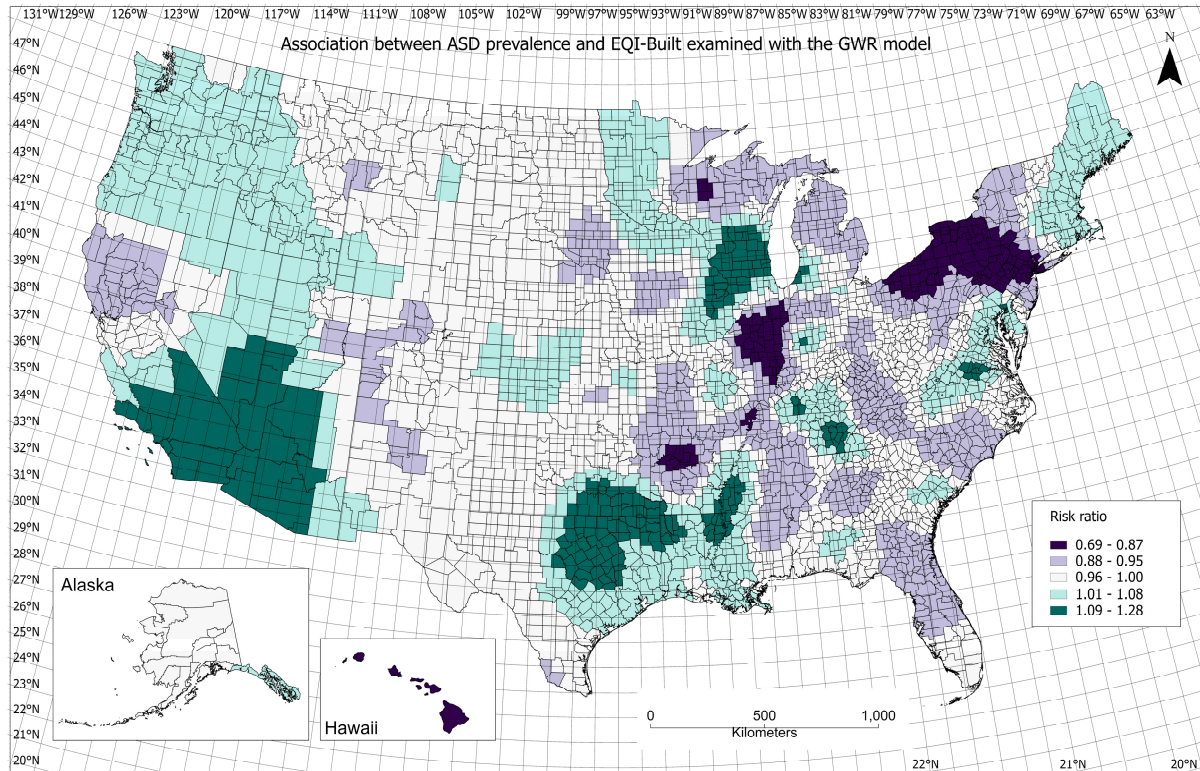


Figure S3. Association between ASD prevalence and the land index from the geographically weighted regression model

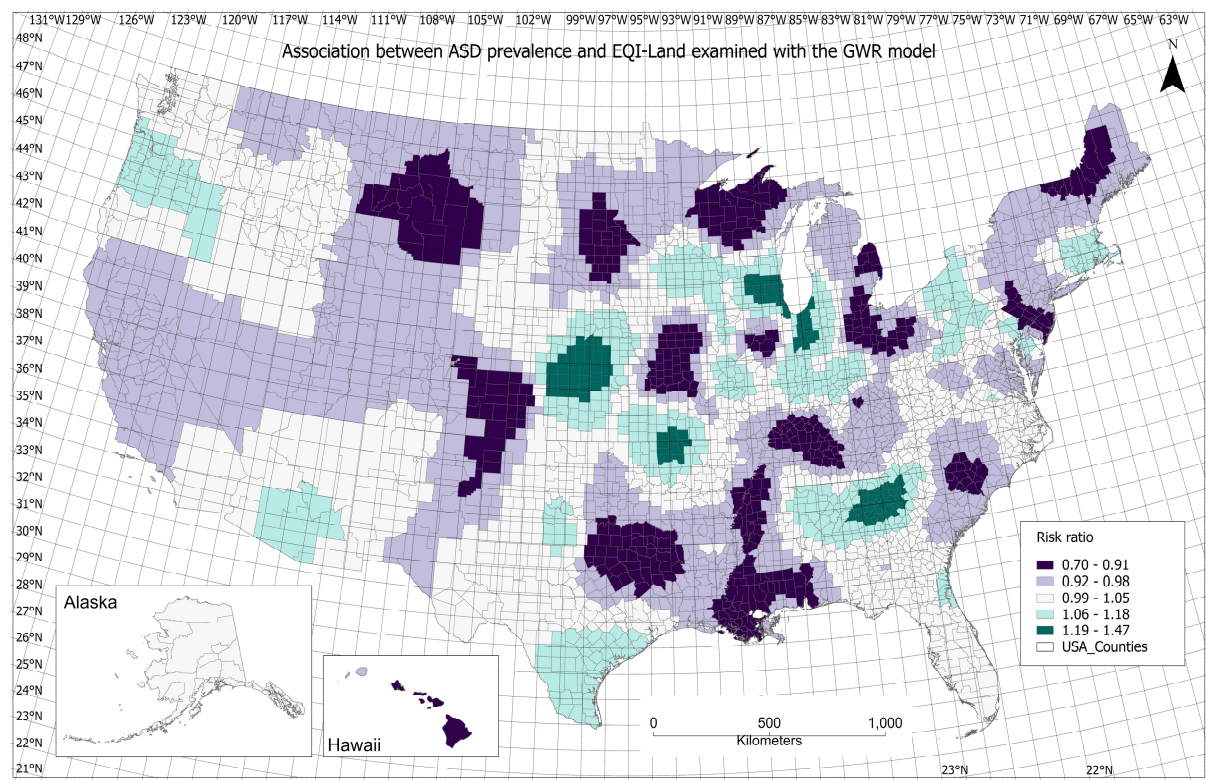


Figure S4. Association between ASD prevalence and the sociodemographic index from the geographically weighted regression model

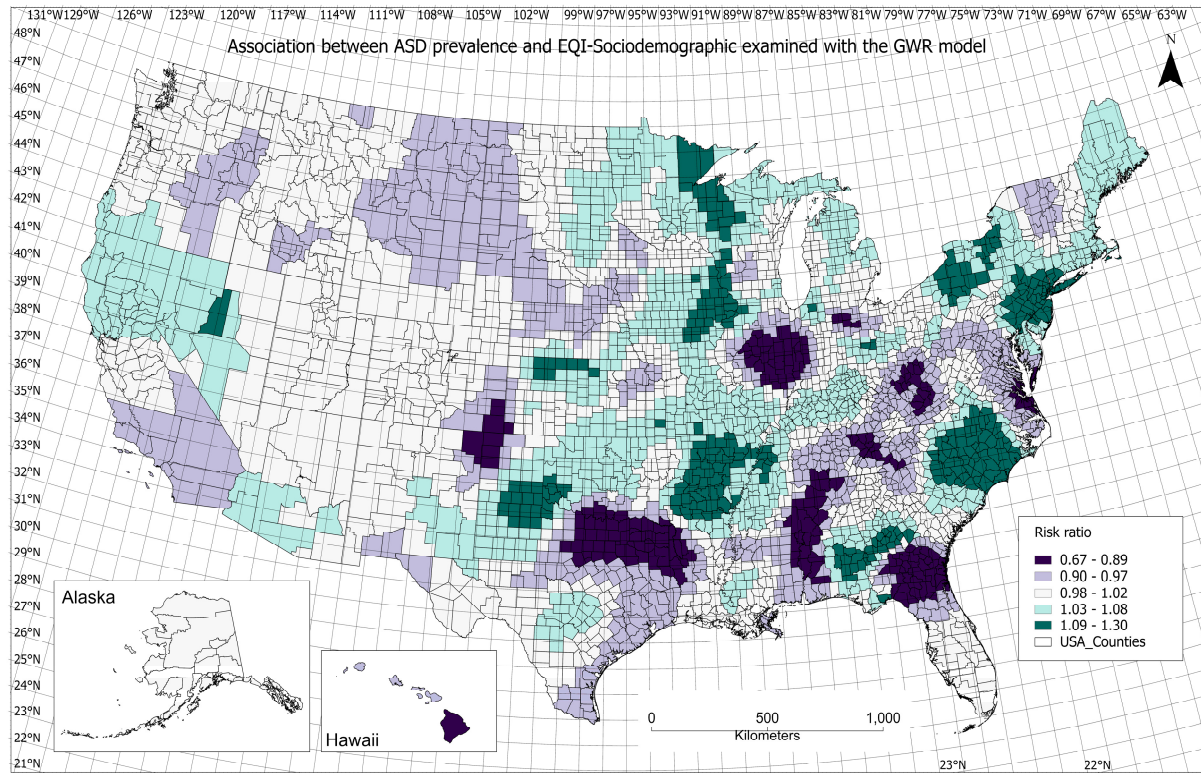




Figure S5. Association between ASD prevalence and the water index from the geographically weighted regression model

