

RESIDENTIAL PROXIMITY TO AGRICULTURE AND GOLF-COURSES IN THE CHARGE STUDY

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Background and Aims: Autism spectrum disorders (ASD) have been diagnosed with increasing frequency throughout the US. Despite changes to diagnostic criteria and younger age at diagnosis, causes for the rise are unexplained. In California, two studies have suggested a positive association between gestational pesticide exposure and ASD's.

Aim 1: Evaluate the association between ASD and developmental delay (DD) and residential proximity to agriculture and golf courses.

Aim 2: Validate self-reported proximity to within ¼ mile of an agricultural field or golf course using land use reports comparing ASD and DD groups to typically developed (TD) children.

Methods: Utilizing data from the population-based case-control study of Childhood Autism Risks from Genes and Environment (CHARGE), birth addresses were geo-coded and mapped to land use report data. Self-reported residential proximity was spatially evaluated for validity. Discordant responses were evaluated for differential recall in logistic regression. Kappa statistics were calculated to evaluate agreement between self-report and spatial validation.

Results: TD children were more likely to live near agriculture or golf courses than case children. 34.9% of parents of children with ASDs reported proximity within ¼ mile, while only 23.17% did live within ¼ mile of agriculture or golf courses. Similarly 36.2% TDs reported proximity compared with the 27.6% that were spatially validated. 30.6% of parents of children with developmental delay (DD) reported proximity, and 18.9% were spatially validated. Parents of ASD and DD cases more often incorrectly reported proximity (OR=1.38 95% confidence interval (CI) 0.88-2.17) (OR=1.35 (95% CI 0.79-2.33) than parents of TD children. Kappa statistics were 0.47 (95% CI 0.36-0.58) for TD children, 0.33 (95%CI 0.234-0.43) for ASD's and 0.30 (95% CI 0.13-0.48) for DD.

Conclusions: Inaccurate recall of self-reported proximity to pesticide application sites was higher in the case groups than noncase group. Agreement between the variables was fair, indicating a moderate reliability of self-reported residential proximity.