

Occupational Pesticide Exposures and Risk of Depression in Central California

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Abstract

Background: Depression is the most common mental disorder worldwide. Pesticides are neurotoxins but human data investigating the link between workplace pesticide exposures and depression are sparse.

Methods: We used data from 736 older residents of an agriculturally intensive region of Central California to investigate whether active use and by-stander occupational exposures to pesticides are associated with depression. Participants were older adults enrolled as controls in a study of Parkinson's disease (PD) between 2001-2011. We developed a comprehensive job-exposure-matrix (JEM) based on reported work history information and calculated cumulative exposure scores for pesticides. Information on doctor diagnosis of depression was collected in interviews. To address the time-dependency of exposure and outcome, participants were matched according to the age at first depression occurrence, and we examined only exposures 10 or 20 years prior to this age (categorized as high (\geq median), low ($<$ median), or null JEM-derived cumulative exposure scores). We used conditional logistic regression to account for matching and estimate Odds Ratio (OR) and 95% confidence interval (CI), adjusting for sex, race, education

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and birth year and for smoking and physical activity levels as time-varying covariates.

Results: Farming was the second most common occupation with 27% of participants reporting at least one farming-related occupation. Odds for depression with high cumulative pesticide exposure 10 years (OR=1.78, 95%0.85-3.72) or 20 years (OR=1.68, 95%0.89-3.18) prior to the age of depression occurrence were increased but confidence intervals included the null. No associations were observed with low exposures.

Conclusions: Our data suggest that high cumulative occupational pesticide exposures may be associated with depression among older residents in Central California.



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