

ABSTRACT OF DISSERTATION

DIAGNOSED DEPRESSION AND LOW, INTERMEDIATE, AND HIGH PESTICIDE EXPOSURES IN IOWA AND NORTH CAROLINA FARM APPLICATORS AND THEIR SPOUSES ENROLLED IN THE AGRICULTURAL HEALTH STUDY

The purpose of this study was to evaluate the relationship between history of acute pesticide poisoning and diagnosed depression. The study population came from the Agricultural Health Study, which enrolled 52,395 farmer applicators and 32,347 of their spouses from 1993 to 1997 in Iowa and North Carolina. Data were obtained by self-administered questionnaires and included information on farm characteristics, pesticide exposures, medical conditions, and demographic and lifestyle factors. Cases were defined as those who reported having ever been diagnosed with depression. Exposures were based on total lifetime days of mixing or applying pesticides and reported poisonings. The study included 20,553 male farmer applicators and 29,074 female spouses.

A total of 3.1% of farmers and 7.1% of the female spouses reported a diagnosed depression. Separate analyses on farm applicators and their spouses showed pesticide poisoning to be significantly associated with depression (OR for female spouses 3.28; 95% CI 1.73, 6.22 and OR for farm applicators 3.83; CI 2.63, 5.60). The findings from the two analyses support past epidemiological studies reporting that a high-level exposure or acute pesticide poisoning is associated with depression. The associations remained significant in separate analyses by state. Among farm spouses, where only 50% of the study population applied pesticides, involvement of certain OPs and carbamate compounds was apparent.

Future epidemiological studies should obtain complete histories of affective disorders prior to the pesticide poisoning, as well as an inventory of symptoms appearing after poisonings. Future studies should compare those who have developed depressive symptoms after a pesticide poisoning to those who did not develop depressive symptoms after a poisoning. Mood disorders may be a marker of other neurological effects, all of which may have the same underlying biochemical mechanism.

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