

Evaluating an Educational Intervention to Reduce Pesticide Exposure Among Farmers in Nigeria

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Abstract : BACKGROUND: There is concern regarding the widespread use of pesticides and impacts on public health. Farmers in Nigeria frequently apply pesticides, including organophosphate pesticides which are known neurotoxicants. They receive little guidance on how much to apply or information about safe handling practices. Pesticide poisoning is one of the major hazards that farmers face in Nigeria. Farmers continue to use highly neurotoxic pesticides for agricultural activities. Because farmers receive little or no information on safe handling and how much to apply, they continue to develop severe and mild illnesses caused by high exposures to pesticides. The project aimed to reduce pesticide exposure among rural farmers in Nigeria by identifying hazards associated with pesticide use and developing and pilot testing training to reduce exposures to pesticides utilizing the hierarchy of controls system. METHODS: Information on pesticide knowledge, behaviors, barriers to safety, and prevention methods was collected from farmers in Nigeria through workplace observations, questionnaires, and interviews. Pre and post-surveys were used to measure farmer's knowledge before and after the delivery of pesticide safety training. Training topics included the benefits and risks of using pesticides, routes of exposure and health effects, pesticide label activity, use and selection of PPE, ways to prevent exposure and information on local resources. The training was evaluated among farmers and changes in knowledge, attitudes and behaviors were collected prior to and following the training. RESULTS: The training was administered to 60 farmers, a mean age of 35, with a range of farming experience (<1 year to > 50 years). There was an overall increase in knowledge after the training. In addition, farmers perceived a greater immediate risk from exposure to pesticides and their perception of their personal risk increased. For example, farmers believed that pesticide risk is greater to children than to adults, recognized that just because a pesticide is put on the market doesn't mean it is safe, and they were more confident that they could get advice about handling pesticides. Also, there was greater awareness about behaviors that can increase their exposure (mixing pesticides with bare hands, eating food in the field, not washing hands before eating after applying pesticides, walking in fields recently sprayed, splashing pesticides on their clothes, pesticide storage). CONCLUSION: These results build on existing evidence from a 2022 article highlighting the need for pesticide safety training in Nigeria which suggested that pesticide safety educational programs should focus on community-based, grassroots-style, and involve a family-oriented approach. Educating farmers on agricultural safety while letting them share their experiences with their peers is an effective way of creating awareness on the dangers associated with handling pesticides. Also, for rural communities, especially in Nigeria, pesticide safety pieces of training may not be able to reach some locations, so intentional scouting of rural farming communities and delivering pesticide safety training will improve knowledge of pesticide hazards. There is a need for pesticide information centers to be situated in rural farming communities or agro supply stores, which gives rural farmers information.

Keywords : pesticide exposure, pesticide safety, nigeria, rural farming, pesticide education

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