

ORIGINAL ARTICLE

EFFECTS OF AN EDUCATIONAL INTERVENTION ON KNOWLEDGE AND SAFETY PRACTICES IN PESTICIDE HANDLING AMONG FARMERS IN SAMARAHAN, SARAWAK

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ABSTRACT

Poor safety practices in pesticide handling contribute to the severe consequences of cases of pesticide poisoning globally. The objective of this study was to determine the effectiveness of an educational intervention to improve the knowledge and safety practices in pesticide handling among farmers in Samarahan, Sarawak. A quasi-experimental study was conducted involving an interventional (n= 50) and a control group (n = 50). A self-administered questionnaire was used to collect baseline information on participants' knowledge and practices in pesticide handling. Participants in the interventional group underwent a five-month interventional programme consisting of four modules on the importance of understanding pesticides label, short and long-term effects of pesticides, routes of entry into the body and symptoms manifested upon exposure, safety usage, storage and disposal methods and practices. The control group were not exposed to any intervention. All the participants were reassessed at one- and fifth-month post-intervention using a validated self-administered questionnaire. Data were analysed using repeated measure analysis of variance to measure the effect of intervention between the groups. No significant difference was observed in the baseline based on gender and age distribution between both groups. Participants from the interventional group recorded a significant improvement in the mean knowledge and safety practices scores in the first month and fifth months compared to the baseline values. Meanwhile, no significant improvement in both outcomes was detected in the control group throughout the three assessments. These findings revealed that locally tailored educational intervention is effective in improving the knowledge level and safety practices of farmers in pesticide handling. Hence, these findings can be used by local authorities to develop an effective intervention for pesticide users in Sarawak and other states in Malaysia in reducing the risk of pesticide exposure.

Keywords: Farmers, pesticide poisoning, educational intervention, safety practices, knowledge

INTRODUCTION

The current world population of 7.2 billion indicates the importance and the challenges of sufficient food production to fulfil daily needs¹. In order to secure and enhance the productivity of plantations, organophosphate (OP) pesticides are commonly used insecticides among farmers worldwide. Nevertheless, organophosphate pesticide exposure among farmers is one of the most significant occupational hazards². Although pesticides are used in developed and developing countries, cases of acute and chronic organophosphate pesticide poisoning contribute significantly to morbidity and mortality rates, especially in developing countries³. These severe consequences stem from the higher and poor usage of organophosphate pesticides along with inadequate maintenance of protective equipment⁴. Other important predisposing factors include lower safety precaution practices, poor labelling, washing facilities, insufficient enforcement, low literacy, safety knowledge, inappropriate storing and handling, low perceived risk and susceptibility and the lack of laws and regulations on the use of pesticides⁵.

Studies have shown that farmers were not following the basic pesticide safety measures due to the low perceived risk of unsafe use of pesticides^{6,7}. These findings reflect farmers' poor knowledge regarding organophosphate pesticides, perceived susceptibility, risk, severity and the lack of cue to action to protect themselves from organophosphate pesticide poisoning⁷. Thus, increasing knowledge and perceived benefit of pesticide safety were positively related to the higher usage of personal protective equipment and safe handling of pesticides⁵.

Malaysia is well-known as one of the major producers of agricultural products in South East Asia. Meanwhile, in Sarawak, Samarahan is the main agricultural area for the production of agricultural commodities⁸. Hence, the use of organophosphate pesticides among farmers in Samarahan is widely employed to safeguard crops from pests⁸. Nevertheless, such extensive use of organophosphate pesticides may result in severe health issues. This is further exacerbated as there is no specific policy or law to safeguard farmers on the usage of organophosphate pesticides except policies on the amount of certain pesticide residual allowed in food.