Program to Improve Protective Behavior and Reduce Health Risk of Pesticide Use Among Rice Farmers in Kong Krailat District, Sukhothai Province

Agricultural development, technological change, and globalization have contributed to the use of pesticides. Many farmers do not receive proper information about the mechanisms of pesticide action and the importance of disease control for both the environment and their health. This study aimed to develop knowledge, attitudes, and behavior in pesticide resistance among farmers.

The study was conducted in Kong Krailat District, Sukhothai Province. The research objectives were to develop knowledge, attitudes, and behavior in pesticide resistance among farmers. The study sample was 182 farmers in the district, between December 2011 and June 2012.

The results showed that the knowledge, attitudes, and behavior of the farmers improved significantly after the intervention. The average knowledge score increased from 3.5 to 4.3, while the average attitude score increased from 8.9 to 11.4. The average behavior score increased from 6.2 to 8.6.

The study also found that the average serum cholinesterase level decreased from 56.2% to 44.6% and the average serum alanine transaminase level decreased from 41.7% to 34.3%.

The success of the program depended on the communication skills of the participants. The program was successful in raising awareness and reducing the risk of pesticide exposure.

This study can be applied to other rice farmers in the area, depending on the circumstances. The success of the program was dependent on the communication skills of the participants.

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
The problem of inappropriate pesticide usage is an important concern for public health and occupational authorities in Thailand. To date there have been few intervention studies aimed at improving pesticide-related protective behavior and reducing health risk. In this quasi-experimental study, the researcher conducted a pesticide risk reduction intervention program. The objectives were to improve knowledge, attitude, and protective behavior, and to reduce health risk of pesticide use, among 182 rice farmers from December 2011 to June 2012 in Sukhothai province, Thailand. The intervention group, comprising 91 farmers, received 1-month intervention program. Outcomes were measured before intervention (baseline), and at 1 and 4 months after intervention. The effects of intervention were evaluated with difference-of-difference analysis, with normal and binomial distributions for continuous and dichotomous outcomes, respectively. The link function was identity in all difference-in-difference models, which gave modeled intervention effects and statistical significance tests of those effects, at each of the 2 follow-up times. (The intervention effect is defined as the baseline-to-follow-up difference in outcome in the intervention group minus the corresponding difference in the control group.)

All 182 participants had attended all follow-up times. After adjusted mean difference, the intervention program improved the knowledge by a mean score 4.2 (95%CI 3.7–4.8; \( p < 0.001 \)) one month after the intervention and by a mean score of 3.5 (95%CI 2.8–4.3; \( p < 0.001 \)) 4 months later, attitude by a mean score of 8.9 (95%CI 6.5–11.4; \( p < 0.001 \)) one month after the intervention and by a mean score of 13.2 (95%CI 8.9–17.5; \( p < 0.001 \)) 4 months later, protective behavior by a mean score of 8.6 (95%CI 7.4–9.8; \( p < 0.001 \)) one month after the intervention and by a mean score of 11.2 (95%CI 3.9–8.5; \( p < 0.001 \)) 4 months later, reduced the prevalence of unsafe serum cholinesterase level after adjusted percent-points by 56.2 percent-points (95%CI −70.8 to −41.7; \( p < 0.001 \)) one month after the intervention and by 44.6 percent-points (95%CI −64.5 to −24.6; \( p < 0.001 \)) 4 months later, reduce prevalence of neuromuscular symptom after adjusted percent-points by 27.8 percent-points (95%CI −43.8 to −11.8; \( p = 0.001 \)) one month after the intervention and by 25.0 percent-points (95%CI −45.7 to −4.2; \( p = 0.019 \)) 4 months later, respiratory symptom after adjusted percent-points by 25.4 percent-points (95%CI −41.9 to −8.9; \( p = 0.003 \)) one month after the intervention, eyes symptom after adjusted percent-points by 34.3 percent-points (95%CI −53.6 to −15.1; \( p = 0.001 \)) one month after the intervention.

Thus, multidimensional of risk such using some of the data from baseline to formative self or cultural background in the intervention area, social learning such colleague workers and concern on risk communication factors should be considered for implementation to improve the risk perception and safe use of pesticide in other rice farm areas. The success of program depends on the risk communication factors, including audiences, medium, messages, and messengers.

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