

**FACTORS INFLUENCING PESTICIDE USE-RELATED  
SYMPTOMS AMONG RICE FARMERS IN  
KONGKRAILAT DISTRICT,  
SUKHOTHAI PROVINCE**

**MR. PHATARAPHON MARKMEE**

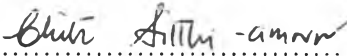
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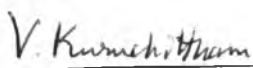
Thesis Title            Factors influencing pesticide use-related symptoms  
                                 among rice farmers in Kongkrait District, Sukhothai Province  
By                            Mr. Phataraphon Markmee  
Program                  Health Systems Development  
Thesis Advisor         Robert Sedgwick Chapman, M.D., M.P.H.


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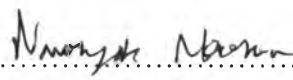
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PHATARAPHON MARKMEE: FACTORS INFLUENCING PESTICIDE USE-RELATED SYMPTOMS AMONG RICE FARMERS IN KONGKRAILAT DISTRICT, SUKHOTHAI PROVINCE. THESIS ADVISOR: ROBERT SEDGWICK CHAPMAN, M.D., M.P.H., 110 pp, ISBN 974-9599-96-9

The objective of this cross-sectional analytical research was to ascertain relationships between socio-demographic factors, pesticide use history, and self-protective behaviors (independent variables) and pesticide-related symptoms (dependent variables) among 420 rice farmers in Kongkrait District, Sukhothai Province, Thailand. The data were collected using standardized, pre-tested questionnaires in March 2006. Subjects were selected by multi-stage random sampling. Data were analyzed with SPSS. Descriptive statistics presented as percentage, mean, median, and standard deviation (S.D.). Chi-square statistics were calculated to assess relationships between independent and dependent variables. The statistical significance level was set at .05.

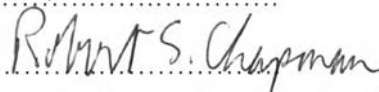
Study results showed that 59.5% of subjects were male, average age was 42.7 years, 83.1% were married, 81.0% had education level at primary school, 73.8% had family' monthly income  $\leq$  10,000 baht, 77.1% had never been trained in safe use pesticides, 72.9% used pesticides  $>$  7 days in last year, 75% used pesticides at recommended concentrations. Duration of each spraying averaged 3.43 hours, 85.7% had duration since most recent expose to pesticide  $>$  7 days, major method of application was spraying, 83.6% mixed pesticides  $\geq$  2 kinds. 54.0% had relatively good self-protective behavior.

The 32 queried symptoms were divided into 5 organ systems: neuromuscular, eye, respiratory, digestive, and skin/nails. Symptoms that had ever during or within 24 hours were neuromuscular 52.9%, respiratory 33.8%, eyes 14.5%, skin 11.7%, and digestive 8.6%, and symptoms had ever within last year were neuromuscular 62.9%, respiratory 41.9%, digestive 20.7%, skin 21.9%, and eye 18.6%. Income and marital status were more strongly associated with symptoms than were age and education level. Unexpectedly, subjects who had never been trained in safe pesticide use generally had lower symptom rates than subjects who had been trained. Frequency of pesticide use and concentration had strong association with symptoms and higher association than duration of using pesticides as rice farmer, duration of each pesticide applying, number of pesticide mixed, main duty in handling, and method of pesticide use. Findings suggested presence of a sensitive subgroup, who developed symptoms quickly after starting to apply pesticides. Self-protective behaviors during application were less strongly associated with symptom rates than were such behaviors before and after application. Among the 280 subjects with any symptoms in the last year, a substantial proportion (42 subjects, 15.0%) had symptoms persisting after most recent reported pesticide use.

I recommend that the authorities in occupational health and health promotion should be concerned about pesticide use and self-protection behaviors and promote methods such as integrated pesticide management for rice farmers.

Field of study: Health Systems Development Student's signature.....

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