

AWARENESS REGARDING HEALTH EFFECTS OF PESTICIDES USE AMONG FARMERS IN A MUNICIPALITY OF RUPANDEHI DISTRICT

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ABSTRACT

INTRODUCTION:

Pesticides are natural or synthetic agents that are used to kill unwanted plant or animal pests. Pesticides use is the most attractive method of controlling pest which involves less labour and characterised higher outcome per hector of land. Extensive use of such pesticides results in substantial health and environmental threats.

MATERIAL & METHODS:

Descriptive cross-sectional design was used for the study to find out awareness regarding health effects of pesticides use. Fifty vegetable farmers were selected as the study sample by non purposive and snow ball sampling technique. Pretested structured interview schedule was used for data collection and analyzed by using descriptive statistics.

RESULTS:

The findings of the study revealed that respondents were aware that skin irritation (96%), dermatitis (92%), dizziness (98%), headache (96%) as poisoning symptoms in skin and nervous system. Respondents were aware nausea (84%), vomiting (96%), dyspnoea (88%), and throat itching (76%) as poisoning symptoms in gastro-intestinal and respiratory system. Respondents were also aware that eye irritation (96%) and burning (90%), and tachycardia (90%) as poisoning symptoms of pesticide use in eye and cardio vascular system. They were aware that use of pesticides may cause cancer (88%), foetal death (74%), infertility (66%), birth defects (66%) and miscarriage (56%) as long term effects. Cent percent of respondents were aware that washing exposed part with soap water, taking bath and changing clothes as immediate actions after pesticides contact with body

CONCLUSION:

Based on the findings of the study more than half of respondents had low level of awareness regarding health effects of pesticides use. So, it is recommended to organize awareness program to the farmers regarding health effects of pesticides use.

KEY WORDS: Health effects, pesticides use, farmer, poisoning symptoms

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INTRODUCTION

The term pesticide is defined as any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products, or animal feedstuffs, or which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies.¹

The use of chemicals in modern agriculture has significantly increased productivity. But it has also significantly increased the concentration of pesticides in food and in our environment, with associated negative effects on human health. Annually there are dozens of million cases of pesticide poisonings worldwide.² The WHO and the United Nations Environment Program estimate pesticide poisoning rates of 2- 3 per minute with approximately 20000 workers dying from exposure every year, the majority in developing countries.³

Exposure to pesticides results in acute and chronic health problems, ranging from temporary acute effects such as irritation of the eyes and excessive salivation to chronic diseases such as cancer and reproductive and developmental disorders.⁴

Studies have shown that 90% of the total pesticides are used in vegetable farming. So various studies in Nepal reported the massive use of chemical pesticides affects the human health as well as other ecological aspects such as soil surface and ground water, micro and macro flora and fauna.⁵

MATERIAL & METHODS

Descriptive cross-sectional design was used for study to find out awareness regarding health effects of pesticides use among farmers. The study was conducted in Tilotama municipality ward no. 24, Rupandehi. Fifty vegetable farmers who are owner of at least 0.0676 hectare (2 kathha) of agricultural land were selected as the study sample by non probability purposive and snow ball sampling technique. Interview method was used for data collection with use of pretested structured questionnaire, developed by researchers by reviewing the related literatures, consulting with the subject experts. There were 28 questions regarding health effects of pesticides use. Data collection was done in 2 weeks of period (August 14 to 27, 2016). Administrative and ethical approval was obtained from concerned authorities prior to data collection.

The researchers contacted each respondent and obtained written informed consent for the study and interviewed.

Researchers interviewed five to six respondents per day and only one farmer was included in the study from one household. Descriptive statistical method was used with SPSS 16 version to analyze data using frequency, percentage and mean.

RESULTS

Mean age of the respondents' was 33.5 years. Eighty percent of respondents were Madhesi and among 50 respondents 94% were literate. Regarding cultivable land, 94% of respondents had 2-11kathha cultivable land. As regards awareness on vulnerable people of pesticides use, all of the respondents answered those who apply the pesticides and 16% answered those who purchase the pesticides. Similarly, all and 68% of respondents answered pregnant women and elderly as more vulnerable people of pesticides use (Table 1).

Table 1: Respondents' Awareness Regarding Vulnerable and More Vulnerable People of Pesticides Use

Responses**	Frequency	Percentage
Vulnerable people		
Those who apply the pesticides*	50	100
Those who work on the farm*	42	84
Those who consume the crops*	46	92
Those who live near the farm area*	21	42
Those who purchase the pesticides	8	16
More vulnerable people		
Pregnant women*	50	100
Children*	48	96
Elderly*	34	68
Adult	-	-

**Multiple response *correct response Mean % score of vulnerable people=79.5
Mean % score of more vulnerable people=88

As regards awareness on poisoning symptoms of pesticides use in skin 96% and 22% of respondents answered skin irritation and crust formation. Similarly, 98% and 22% of respondents answered dizziness and pallor as poisoning symptoms of pesticides use in nervous system (Table 2).

Table 2: Respondents' Awareness Regarding Poisoning Symptoms of Pesticides Use in Skin and Nervous System

Responses**	Frequency	Percentage
Skin		
Dermatitis*	46	92
Blister*	30	60
Skin irritation*	48	96
Crust formation	11	22
Pruritis*	32	64
Nervous system		
Dizziness*	49	98
Headache*	48	96
Weakness*	27	54
Pallor	11	22
Numbness*	26	52

**Multiple response *Correct response

Regarding poisoning symptoms of pesticides use in gastro-intestinal system, 96% and 14% of respondents answered vomiting and heartburn. Similarly, 88% and 50% of respondents answered dyspnoea and chest pain as poisoning symptoms of pesticides use in respiratory system (Table 3).

Table 3: Respondents' Awareness Regarding Poisoning Symptoms of Pesticides Use in Gastro-intestinal System and Respiratory System

n= 50		
Responses**	Frequency	Percentage
Gastro-intestinal system		
Diarrhoea*	31	62
Heartburn	7	14
Vomiting*	48	96
Nausea*	42	84
Respiratory system		
Chest pain*	25	50
Cough*	26	52
Dyspnoea*	44	88
Throat itching*	38	76

**Multiple response Mean % score of poisoning symptoms in GI system=80.67
*Correct response Mean % score of poisoning symptoms in respiratory system=66.5

As regards awareness on poisoning symptoms of pesticides use in eye 96% and 20% of respondents answered eye itching and blurred vision. Similarly, 90% and 4% of respondents answered tachycardia and cyanosis as poisoning symptoms of pesticides use in cardiovascular system (Table 4).

Table 4: Respondents' Awareness Regarding Poisoning Symptoms of Pesticides Use in Eye and Cardiovascular System

n= 50		
Responses**	Frequency	Percentage
Eye		
Eye itching*	48	96
Eye swelling	22	44
Eye burning *	45	90
Blurred vision*	10	20
Cardiovascular system		
Palpitation*	21	42
Tachycardia*	45	90
Cyanosis	2	4
Arrhythmia*	27	54

**Multiple response Mean % score of poisoning symptoms in eye=68.67
*Correct response Mean % score of poisoning symptoms in cardiovascular system=62

As regards awareness on long term effects of pesticides use, 84% and 22% answered cancer and dizziness (Table 5).

Table 5: Respondents' Awareness Regarding Long Term Effects of Pesticides Use

n=50		
Responses**	Frequency	Percentage
Cancer*	42	84
Parkinson's disease*	28	56
Infertility*	33	66
Birth defects*	33	66
Foetal death*	37	74
Miscarriage*	28	56
Dizziness	11	22

**Multiple response * Correct response
Mean % score of long term effects of pesticide =67

As regards awareness on immediate actions after pesticides contact with body, all of respondents had answered washing the exposed part with soap and water, taking bath and changing clothes (Table 6).

Table 6: Respondents' Awareness Regarding Immediate Action after Pesticides Contact with Body

n=50		
Responses**	Frequency	Percentage
Washing the exposed part with soap and water*	50	100
Taking bath*	50	100
Changing clothes*	50	100
Do nothing	-	-

**Multiple response * Correct response Mean % score=100

On the basis of mean awareness score (19.473) of the study, 56% of respondents had low awareness regarding health effects of pesticides use (Table 7).

Table 7: Respondents' Overall Awareness Regarding Health Effects of Pesticides Use

Level of awareness	Frequency	Percentage
High awareness	22	44
Average awareness	-	-
Low awareness	28	56

Mean awareness score=19.473

DISCUSSION

The findings of the study revealed that 100% of respondents knew that people who apply the pesticides, 92% knew who consume the crops, 84% knew who work on the farm and 42% knew who live near farm area are vulnerable of pesticides use. Findings are not consistent with the study⁶ which shows 81.3% had awareness regarding those who apply the pesticides, 60.7% about those who consume the crops, 70.5%

about those who work on the farm and 26.8% about those who live near the farm area. Ninety-six percent of the respondents knew skin irritation as poisoning symptoms of pesticides use which is not consistent with the study⁷ which shows 66% of the respondents had awareness regarding skin irritation. The findings of the study showed that 98% and 96% of the respondents knew dizziness and headache as poisoning symptoms of pesticides use in nervous system. The findings of the study are not consistent with the study⁷ which shows 49% had awareness regarding dizziness and 66% about headache. Eighty four percent of respondents were aware nausea as poisoning symptoms of pesticides use in gastro-intestinal system which is not consistent with the study⁷ which shows 34% had awareness regarding nausea.

Fifty percent, 52%, 88% and 76% of the respondents were aware that chest pain, cough, dyspnoea and throat itching respectively as poisoning symptoms of pesticides use in respiratory systems which are not consistent with the study⁷ which shows 35% had awareness regarding chest pain, 34% about cough, 40% about dyspnoea and 54% about throat itching. The findings of the study showed that 96% of the respondents knew eye itching and 20% blurred vision as poisoning symptoms of pesticides use in eye. The findings of the study are not consistent with the study⁷ which shows 61% had awareness regarding eye itching and 42% about blurred vision. Sixty-two percent and 67% of the respondents knew poisoning symptoms of pesticides use in cardio-vascular system and long term effects of pesticides use. Cent percent respondents were aware that washing the exposed part with soap and water and changing clothes as immediate action after pesticides contacts with body which are not consistent with the study⁸ which shows 33% and 10% had awareness regarding washing the exposed part with soap and water and changing clothes as immediate actions after contact of pesticides with body.

The findings of the study showed that 56% of respondents had low awareness regarding health effects of pesticide use which is not consistent with the study⁹ which shows 93% of the farmers had unawareness regarding health effects of pesticides use.

CONCLUSION

Respondents have awareness that use of pesticides causes adverse effects on human health. Respondents are aware that vulnerable people and more vulnerable people of pesticides use. They are aware that skin irritation, dermatitis, dizziness, headache, nausea, vomiting, dyspnoea, throat itching, eye irritation and burning, and tachycardia are poisoning symptoms of pesticide use. They are aware that use of pesticides may cause cancer, infertility, miscarriage, birth

defects and foetal death as long term effects. All of them are aware that immediate actions after pesticides contact with body. Besides this, more than half of respondents have low awareness regarding health effects of pesticides use in general.

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