



## Practices and Health Related Toxic Symptoms of Pesticide use Among Farm Workers

Manpreet Kaur

Professor, SGRD College of Nursing, SGRDIMSR, Vallah, Amritsar, Punjab

### ABSTRACT

*The present study was conducted on practices and health related toxic symptoms of pesticide use among farm workers at Amritsar, Punjab with the objectives to assess the practices of pesticide use among farm workers, to assess the health related toxic symptoms of pesticide use among farm workers, to find out the association between practices and health related toxic symptoms of pesticide use among farm workers. Data was collected from 100 farm workers selected by purposive sampling with the help of self-structured tool.*

*The study revealed that 50% of farm workers had good practice and 50% of the farm workers had average practices of pesticide use, majority of the farm workers (90.9%) reported skin rash/itching/burning, more than forty percent farm workers reported burning of eyes and one fourth farm workers reported lachrimation. Findings also reveal that there was significant association of health related toxic symptoms with family monthly income at ( $p < 0.05$ ).*

**KEYWORDS :** Pesticide, farm workers, toxicity

### INTRODUCTION:

Farming is a main occupation in Punjab. The unbridled use of pesticides in agriculture sector poses a serious environmental degradation problem besides, being intimately associated with public and workers health hazard. Although the use of pesticides help to considerably control diseases, hence reduce crop losses and result in better yield of the crops. Pesticides pose significant occupational health and environmental risks throughout the world (WHO 1990). It is widely recognized that agriculture workers are the largest occupational group at risk of adverse health effects. Although most agriculture workers may be facing pesticide hazards, spray men are usually the most highly exposed group because of inadequate clothing, drift of spray droplets, leaks and other defects in the spray equipment, or other reasons.<sup>1</sup>

The Malwa region of Punjab, India, is facing an unprecedented crisis of environmental health linked to indiscriminate, excessive, and unsafe use of pesticides, fertilizers, and poor groundwater quality. The region has been described as India's "cancer capital" due to abnormally high number of cancer cases, which have increased 3-fold in the last 10 years. Studies of this region have also highlighted a sharp increase in many other pesticide-related diseases, such as mental retardation and reproductive disorders. The most affected individuals are the agricultural workers who are directly exposed to pesticides.<sup>2</sup>

Elements of unsafe use of pesticides that have been identified by past research include erroneous beliefs of farmers about pesticide toxicity, lack of attention to safety precautions, environmental hazards, and information about first aid and antidotes given by the label, the use of faulty spraying equipment or lack of proper maintenance of spraying equipment, and lack of the use of protective gear and appropriate clothing during handling of pesticides (Damalas et al., 2006a, 2006b<sup>3</sup>; Ajayi and Akinnifesi, 2008<sup>4</sup>; Chalermphol and Shivakoti, 2009<sup>5</sup>; Pli-anbangchang et al., 2009<sup>6</sup>; Sosan and Akingbohunge, 2009<sup>7</sup>).

Farming populations exposed to pesticides suffer from several health problems, primarily neurological abnormalities, respiratory ailments and reproductive, endocrinological, and dermal problems.<sup>8</sup>

From the above mentioned facts it is very clear that inappropriate use of pesticide is very harmful for farm workers. The farm workers should be made aware of using pesticides in agriculture and safely to avoid these adverse effects on health.

### Objectives:

1. To assess the practices of pesticide use among farm workers.
2. To assess the health related toxic symptoms of pesticide use among farm workers.
3. To find out the association between practices and health related toxic symptoms of pesticide use among farm workers.
4. To find out the association between practices and health related toxic symptoms with selected demographic variables.

### Materials and Methods:

A Descriptive Survey design was used in the study, among 100 samples of farm workers. Purposive sampling technique was used to select the sample for study. Informed consent was obtained from the sample in the research study, the investigator did an extensive review of the research and non-research literature through thesis, journals, textbooks, reports and electronic database. The final tool for data collection had four parts. Content validity and reliability of the tool was also established. Part A consist of socio demographic profile which includes seven items relating to demographic data of farm workers such as age, gender, educational status, type of family, family monthly income and marital status. Part B consist of variables related to pesticide use like experience in farming, experience of pesticide application, use of spray per day during a harvesting period. Part C consist of twenty seven items of practices of farm workers( Karl Pearson's correlation coefficient 0.93). Part D consists of inventory of health related toxic symptoms of pesticide use (rank correlation 0.97). The results were described by using descriptive and inferential statistics.

### Results:

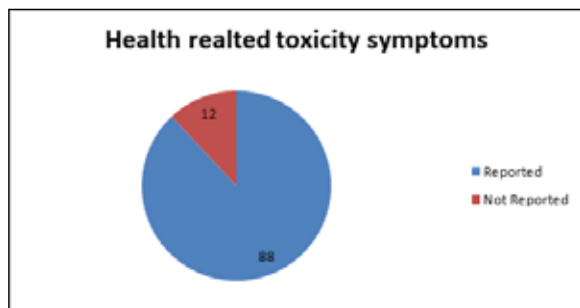
The results revealed that nearly half of the farm workers were in age group of 46 to 60 years, all were male, 40% had obtained middle certificate and more than half of the farm workers had monthly income less than Rs. 32,050. Majority (99%) of the farm workers were engaged in spraying pesticide daily during harvesting season. Pesticide salesman was the source of information for 91% of the farm workers. Regarding practice of pesticide use (Table 1), 50% of farm workers had good practice and another 50% of farm workers had average practice of pesticide use among farm workers. It is observed that the respondents had mean practice score 36.66 with standard deviation of 5.32.

**Table -1 Practice Score of pesticide use among farm workers  
N=100**

Practice	Score	f / (%)	Mean	SD
Good	(37-54)	50	36.66	5.32
Average	(19-36)	50		
Poor	(>19 )	-		

Obtainable Score Range = 0-54

Figure 1 shows that 88% of the farm workers reported health related toxic symptoms of pesticide use among farm workers, whereas 12% of farm workers did not reported any health related toxic symptom of pesticide use.



**Fig 1: Reporting of toxic symptoms by farm workers**

Table 2 shows that majority (90.9%) of respondents reported skin rash/itching/burning. 42.04% reported burning of eyes, 27.27% reported lacrimation, 4.5% reported blurred vision, 4.5% reported difficulty in seeing and 2.2% reported irritation in eyes, 13.68% reported anxiety, 5.68% reported running nose, 3.40% reported difficulty in breathing, 2.27% reported cough, 1.13% reported irritation of throat, 6.81% reported headache, 2.27% reported excessive sweating and 2.27% reported abdominal pain.

**Table -2 Health related toxic symptoms of pesticide use among farm workers N=88**

Inventory of Toxic symptoms	f *	(%)
<b>Skin and Extremities</b>		90.90
Skin Rash/Itching/Burning	80	42.04
<b>Eye Symptoms</b>	37	27.27
Burning	24	04.54
Lacrimation	04	04.54
Blurred Vision	04	02.27
Difficulty in Seeing	02	
<b>Central Nervous System Symptoms</b>	12	13.68
Anxiety		05.68
<b>Respiratory Symptoms</b>		03.40
Running Nose	05	02.27
Difficulty in Breathing	03	01.13
Cough	02	
Irritation of throat	01	
<b>Systemic Symptoms</b>		06.81
Headache	06	02.27
Excessive Sweating	02	02.27
Abdominal Pain	02	

\*Multiple symptoms were reported by farm workers

To find out the association of health related toxic symptoms with selected demographical variables and variables related to pesticide use. Chi-square test was employed. Test reveal that family monthly income is significant with health related toxic symptoms at p value <0.05 and there is no association between health related toxic symptoms with variables related to pesticide use.

**Discussion and conclusion:**

The present study showed that that majority (90.9%) of respondent reported skin rash/itching/burning. 42.04% reported burning of eyes, 27.27% reported lacrimation. A similar study conducted by Sa'ed Zyoud et al. (2010) at Nablus District, Palestine<sup>9</sup> on 381 farm workers reported the most frequent self-reported toxicity symptoms associated with pesticide use were skin Rash (37.5%), headache (37%), excessive sweating (24.9%) and diarrhea (21.3%). The study reveals that due to lack of awareness, occupational exposures of pesticides among farmers are common and it also emphasized the importance of use of personal protective equipment's.

**References :**

1. Wesseling C, McConnell R, Partanen T (1997). "Agriculture pesticide use in developing countries. Health effects and research needs". International Journal of Health Services. (Vol 27 pp273-308).
2. Taylor and Francis (2014). "Effects of environmental pesticide on health of rural communities in the Malwa region of Punjab". An international journal. (Vol 20 no. 2 pp 366-387)
3. Damalas CA, Theodorou MG, Georgiou EB (2006). "Attitudes towards pesticide label-

4. ling among Greek tobacco farmers". International Journal of Pest Management. (Vol 52 pp 269-274).
4. Ajayi OC, Akinnifesi FK (2008). "Farmers' understanding of pesticide safety labels and field spraying practices: a case study of cotton farmers in northern Cote d'Ivoire". Sci. Res. Essays. (Vol 2 pp 204-210).
5. Chalermphol J, Shivakoti GP (2009). "Pesticide use and prevention practices of tangerine growers in northern Thailand". Journal of Agricultural Education and Extension. Ext. (Vol 15: pp 21-38).
6. Plianbangchang P, Jetiyanon K, Wittaya Areekul S (2009). "Pesticide use patterns among small-scale farmers. "A case study from Phitsanulok". Southeast Asian Journal of Tropical Medicine and Public Health. (Vol 40 pp401-410).
7. Sosan MB, Akingbohunge AE. (2009) "Occupational insecticide exposure and perception of safety measures among cacao farmers in southwestern Nigeria". Archive of Environmental and Occupational Health. (Vol 64 pp185-193).
8. Rajendran, Dr. S. "Environment and health aspects of pesticides use in Indian agriculture". pp 353 – 373.
9. Sa'ed Z, Ansam S, Waleed S, Rahmat A, Suleiman A, Samah A et al(2010). "Knowledge and Practices of Pesticide Use among Farm Workers in the West Bank, Palestine: Safety Implications". Environmental Health and Preventive Medicine.(Vol 15 no. 4 pp252-61)