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**Shivateerth Hiremath**  
Asst. Professor, GSM, MIT  
Nursing College, Beed Bypass  
Aurangabad, Maharashtra,  
India

## A study to evaluate the effectiveness of structured teaching programme on knowledge regarding selfprotective measures while spraying pesticides among farmers at selected rural areas, Tumkur

**Shivateerth Hiremath**

### Abstract

The quasi experimental design was used for the present study are 100 farmers working in selected area. Study used purposive sampling technique. A semi structured questionnaire was used assess the knowledge. Descriptive and inferential statistics were used to analyze the data. The analysis and the data were based on the objectives and hypothesis. The assessment of overall post-test knowledge level of the farmers regarding self-protective measures while spraying pesticides shows that, the majority of 74.85% farmers have adequate knowledge. The levels of knowledge during pretest and post- test are compared to prove the effectiveness of structured teaching programme. Comparison between Pre-Test and Post-Test scores of farmer's level of knowledge before and after administration of STP. In pre- test 86% farmers had inadequate knowledge on self-protective measures while spraying pesticides, 14% had moderate level of knowledge and none of them had adequate level of knowledge. But in the post-test, none of the farmers are inadequate knowledge, 30% farmers are moderate level of knowledge, 70% farmers are adequate level of knowledge regarding self-protective measures while spraying pesticides.

The findings of the study shows that, the majority of 74.85% of farmers had adequate knowledge regarding the self-protective measures while spraying pesticides. The study concluded that there is significant increase in the knowledge level among farmers after structured teaching programme.

**Keywords:** Farmers, self-protective measures, pesticides

### Introduction

“Health is a relationship between you and your body.”

-Terri Guillemets

Health is on one hand a highly personal responsibility and on the other hand a major public concern <sup>[1]</sup>.

Self care is the recent trend in health care. It is defined as “those health generating activities that are undertaken by the persons themselves.” It refers to those activities Individuals undertake in promoting their own health, preventing their own disease, limiting their own illness and restoring their own health. The generic attribute of self-care is its non- professional, non-bureaucratic, non-industrial character among rural peoples its natural place in social life <sup>[1]</sup>.

The word pesticide is a broad term that refers to any device, method or chemicals that kill plants or animals that compete to humanities food supply or are otherwise undesirable. Pesticides include insecticides fungicides, herbicides, nematocides and rodenticides <sup>[2]</sup>.

Pesticides, despite their known toxicity, are widely used in developing countries for agricultural purposes. Occupational poisoning with pesticides are common in developing countries. At most 80% of farmers are unaware about patterns of hardware use for spraying of insecticides, prevalent storage practice adopted by the user, types of personal protective equipments used for the handling of chemicals; To detect dangerous practices and the extent to which safety norms being followed by the users during the application/treatments <sup>[3]</sup>.

Illiteracy low level of education, and inadequate information regarding the adverse effect of pesticides <sup>[4]</sup>.

In India 70% to 75%. of total population are living in rural area. Out of that 80% are farmers. In most low income countries, intensification of agriculture and to lesser extent the public health control of vector borne diseases have led to an increase in the use of pesticides <sup>[4]</sup>.

Today, some 900 active pesticides are used to manufacture 40,000 commercial preparations.

**Corresponding Author:**  
**Shivateerth Hiremath**  
Asst. Professor, GSM, MIT  
Nursing College, Beed Bypass  
Aurangabad, Maharashtra,  
India

The environmental agency estimates that the use of pesticides doubled between 1990-2010. Currently over 372 million kilograms a year are used in India with over 1.8 billion kilograms a year used world wide [5].

According to World Health Organization the spectrum of mortality from poisoning ranges from accidental, deliberate, homicidal. Occupational to industrial poisoning. A deficiency in training programmes for agricultural personnel to ensure the safe use of pesticides is also common. Chronic pesticide poisoning is largely a problem among pure rural populations where men & women all are working in the agricultural area where chemicals are applied and stored. Educating the people could be considered as one of the best methods to curb the indiscriminate and harmful use of pesticides [6].

### Need For the Study

“If man thinks about his physical or moral state he usually discovers that he is ill.”

Johann Wolfgang von Goethe

Agricultural chemicals are used in crop production constitute potential occupational hazards for farmers, who are the prime targets. Though the potential for chronic exposure to pesticides in farming is significant. Morbidity among farmers in most parts of the world has also been under-reported, and pesticide illness in developing countries has not been recognized as a high priority by public health officials because of a lack of concrete data on the actual as opposed to estimated number of cases. Many deficiencies in agricultural hygiene have been identified in developing countries. Although some farmers may be aware of the need for protective measures when applying pesticides. It is thought that they usually do not use such measures either because of lack of knowledge or because the protective equipment is not available. In the rapidly developing countries they are mostly using the protective measures.<sup>7</sup>

The farmers are uneducated, and for this reason, they do not read the labels on pesticide containers and thus, do not follow instructions in the proper handling of those pesticides. Furthermore, the language on the labels is local or English, which is foreign to most of the workers; secondly, the lack of safety training inhibits their use of the pictograms on the labels, which are present on some labels only; and lastly, the non-availability of personal protective equipment and correct gadgets for the preparation of pesticides for spraying on site makes them improvise with what is available (usually inappropriately). Are also not trained formally in the handling of pesticides and they learn farm work practices and techniques from the experts [8].

Exposure to organ phosphorus and carbonate pesticides among farmers. In contrast, most of them are thought to be receiving chronic exposure to low doses and, thus, could develop adverse outcomes such as neurological abnormalities, cancers, immunological effects, dermal problems, and reproductive abnormalities. The health effects of pesticide exposure can be immediately and includes rashes, headache, nausea and vomiting, disorientation, coma shock, respiratory failure, and in severe cases death [8].

The recent study shows that 87% farmers do not know the adverse effects of pesticides and they are not taking care of themselves while spraying the pesticides. A reduction of adverse health effects was attained through a reduction in

exposure to toxic pesticides and behavioral changes. Reportedly national authorities of India fail to keep the complete records on non-fatal occupational exposure in India. Due to short comings in the implementation of the code, the incidence of pesticide poisoning often remains high in developing countries [9].

A Study conducted by Mancini F, (2005), on acute pesticide poisoning among female and male cotton growers in Indian villages. 50 female cotton growers reported the adverse effect experienced after exposure to pesticides by themselves and by their male relatives. The study shows that the serious consequences of pesticides use of the health of farmers, particularly human field helpers. Typically female task such as mixing concentrated chemicals and refilling spraying tanks were as hazardous as direct pesticide application. Of 323 reported events, 83.6% were associated with the signs and symptoms of mild to severe poisoning, and 10% of pesticide application sessions were associated with 3 or more neurotoxin systemic signs and symptoms typical of poisoning by organophosphate which are used in 47% of farmers. It study revealed that low income marginal farmers were more often subjected to severe poisoning than were landlords [11].

From the above research studies and statistical data the researcher found that the pesticide use is very much harmful on the farmers who are not using personnel protective measures. In developed countries the farmers are little bit aware about the personnel protective measures, so that they are using the protective measures. In developing countries like India, Indonesia, Sri Lanka, the farmers are unaware and unavailability of personnel protective measures. Therefore researcher has chosen this study as an opportunity to educate the Indian farmers to develop knowledge regarding personnel protective measures while spraying pesticides.

### Statement of the Problem

“A Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge Regarding Selfprotective Measures While Spraying Pesticides among Farmers at Selected Rural Areas, Tumkur.”

### Objectives of the Study

- To evaluate the existing knowledge regarding self-protective measures for farmers.
- To assess the post-test knowledge regarding self-protective measures for farmers.
- To find out significant difference between pre test and post-test knowledge score on self-protective measures while spraying pesticides among farmers.
- To find out association between post-test knowledge and selected demographic variables.

### Operational Definition

- **Evaluate:** It refers to determine the knowledge gained regarding self-protective measures while spraying pesticides among farmers after structured teaching programme.
- **Effectiveness:** The world effectiveness refers to the extent to which the structured teaching programme on need for self-protective measures while spraying pesticides achieves desired effects.
- **Structured Teaching Programme (STP):** In this study structured teaching programme means a self prepared

teaching programme designed to provide information regarding self-protective measures while spraying pesticides to the farmers at selected rural areas at Tumkur.

- **Knowledge:** It is the farmer's cognitive ability to interpret the information regarding self-protective measures while spraying pesticides.
- **Self-Protective Measures:** These are precautions mainly useful for the farmers while spraying pesticides such as mask, rubber gloves, jackets, caps, eye glasses, leg boots, and long gown to protect the farmers themselves from adverse effect of pesticides.
- **Pesticides:** It is a chemical or combination of one or more chemical extract intended for preventing, destroying or repelling or mitigating any pest. Most commonly used pesticides such as organophosphates, DDT, ivermectin, ipomoea tricolor chlorebense, ipomoea monocrotophos.
- **Farmers:** It refers to the people who are working in their own agricultural land and cultivate many crops

#### Assumptions

- Farmers would positively utilize the knowledge regarding self-protective measures while spraying pesticides as an effective means to reduce risk factor from pesticides.
- Structured teaching programme will improve the knowledge level of farmers regarding self-protective measures while spraying pesticides.

#### Delimitations

- Who are not using self-protective measures while spraying the pesticides.
- Who are willing to participate in the study
- The sample size is limited to 100 farmers who are working as farmers in selected rural areas at Tumkur.

#### Hypotheses

Hypothesis is a statement of predicted relationship between variables.

To achieve the stated objectives, the following hypothesis have been developed which will be tested at 0.05 level of significance.

**H<sub>1</sub>:** There will be a significant increase in the level of knowledge of farmers and effectiveness of structured teaching programme than the level of pre test knowledge.

**H<sub>2</sub>:** There will be a statistically significant association between post-test knowledge score of farmers and demographic variables.

#### Research Methodology

##### Research Approach

The approach adopted for this study is Evaluative research.

**Research Design:** In the present study "one group pre-test, post-test design" was selected which is a Quasi experimental design to measure the effectiveness of structured teaching program on knowledge regarding self-protective measures while spraying pesticides.

#### Variables under Study

##### ▪ Dependent Variable

In this study, knowledge of farmers on self-protective measures while spraying pesticides is the dependent variable.

##### Independent Variable

In this study independent variable was structured teaching program regarding on self-protective measures while spraying pesticides.

##### Research Settings

Setting is the physical location and condition in which data collection takes place in the study [12]. This study was conducted at rural areas like Urukere, Kestur, Tumkur district.

##### Population

In the present study population includes farmers.

##### Sample

The sample comprised of 100 farmers working in selected rural areas at Tumkur.

##### Sample Size

A sample of 100 farmers working in selected rural areas at Tumkur.

##### Sampling Technique

**Non probability sampling technique was considered appropriate for this study**

**For the study:** Purposive sampling technique is a type of non probability sampling which was found appropriate for this study.

#### Results

##### Section I

This part deals with data pertaining to the demographic profile of the respondents in terms of frequency and percentage.

- It gives the distribution of farmers according to age who had participated in the study. 52 farmers are in the age group of 21-30 yrs, 30 farmers are in the age group of 31-40 yrs, remaining 18 are in the age group of 41-50 yrs.
- The Distribution of farmers according to gender participants in the study. About 67 male farmers and 33 female farmers were participated in the research study.
- The distribution of farmers according to religion .63 is Hindu, 17 are Muslim, 16 are Christian, and 4 are others.
- The distribution of farmers according to educational level. 40 farmers is having less than primary education, 37 farmers have secondary education. Remaining 23 farmers having pre university education
- The distribution of farmers according to type of family 50 farmers was nuclear, 37 were joint family, 13 were extended family.
- The gives distribution of farmers according to dietary pattern. 62 farmers are veg, 38 farmers are non veg.
- The above cylindrical diagram shows 32 farmers have get information through television, 34 farmers through health personnel, 21 farmers through news paper, and 13 farmers through friends and neighbors.

**Section II****Assess the Level of Knowledge Regarding Self-protective Measures While Spraying Pesticides among Farmers before Administration of STP**

The summary of statistical outcomes of knowledge on farmers regarding self-protective measures while spraying pesticides was determined with the mean of 14.81 with standard deviation 3.40 and range from 3-21 before administering STP. The mean score percentage was computed and it was found to be 37.02.

The summary of aspect wise statistical outcome of knowledge on farmers regarding self-protective measures.

- Section-A had the mean score of 6.48 with SD 1.60 and mean% of 46.2.
- Section-B had the mean score of 4.63 with SD 1.60 and mean% of 38.58.
- Section-C had the mean score of 3.7 with SD 1.37 and mean% of 26.42.
- Overall had the mean score of 14.81 with SD 3.40 and mean% of 37.02.

**Assessment of Knowledge Regarding Self-protective Measures While Spraying Pesticides. Among Farmers after Administration of STP**

The summary of statistical outcomes of knowledge on farmers regarding self-protective measures while spraying pesticides after STP. Was determined with the mean of 29.94 with standard deviation 2.7 and range from 25-36 after administering STP. The mean score percentage was computed and it was found to be 74.85%. The score and outcome were appraisable more compared to the score observed before the administration of STP

The summary of aspect wise statistical outcome of knowledge on farmers regarding self-protective measures after administering STP.

- Section-A had the mean score of 8.90 with SD 2.26 and mean% of 63.57%
- Section-B had the mean score of 9.57 with SD 1.14 and mean% of 79.75
- Section-C had the mean score of 5.84 with SD 0.79 and mean% of 73.00.
- Overall had the mean score of 29.94 with SD 2.7 and mean% of 74.85%

**Comparison between Pre and Post-test Knowledge of Farmers Regarding Self-protective Measures While Spraying Pesticides**

Comparison between Pre-Test and Post-Test scores of farmer's level of knowledge before and after administration of STP. In pre- test 86% farmers had inadequate knowledge on self-protective measures while spraying pesticides, 14% had moderate level of knowledge and none of them had adequate level of knowledge. But in the post-test, none of the farmers are inadequate knowledge, 30% farmers are moderate level of knowledge, 70% farmers are adequate level of knowledge regarding self-protective measures while spraying pesticides.

**Conclusion**

The Structured Teaching Programme Was Effective.

**Section- III:** Evaluate effectiveness of structured teaching program by comparing pre and post- test Knowledge score. The result undoubtedly confirms that the STP is

significantly effective in improving the Knowledge regarding self-protective measures while spraying pesticides among the sampled Farmers.

The data in above table. 11 depicts that there is high gain in knowledge scores in all content areas of general aspects of pesticides, side effects of pesticides, Self-protective measures while spraying pesticides. at post –test knowledge scores than pre-test score. ‘t’ value was significantly higher than the ‘p’ value. (overall t value = 40.10 which is greater than P=0.001)

**Section –IV:** Association of Post –Test Knowledge with Selected Demographic Variables.

The result of association between the age and the post –test knowledge. The chi-square test was resulted to be non-significant at....0.05 levels. (i. e. p < 0.05). So there is no statistical significant association between age and post-test knowledge of farmers.

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