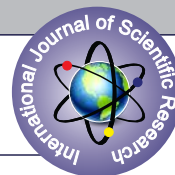


A STUDY TO FIND THE EFFECT OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING SAFE HANDLING AND USE OF PESTICIDES AMONG FARMERS IN BAGORE, MURSHIDABAD.



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ABSTRACT

Background: Safe handling and use of pesticides involve the proper methods of acquiring, transporting, storing, mixing, applying, and disposing of pesticides in order to minimize hazards to human health and the environment. Public awareness regarding pesticide safety is essential for preventing health risks and environmental contamination. Structured teaching programs can effectively improve farmers' knowledge regarding safe pesticide handling and use. **Objectives:** The study aimed to assess the pre-test knowledge regarding safe handling and use of pesticides among farmers in a selected community, evaluate the effectiveness of a structured teaching program in improving their knowledge, and determine the association between pre-test knowledge and selected socio-demographic variables. **Methods:** An evaluative quantitative research approach with a one-group pre-test and post-test design was adopted for the study. A total of 79 farmers from Bagore, Murshidabad, were selected using a non-probability sampling technique. Data were collected using a self-administered structured knowledge questionnaire. The reliability of the tool was established using Spearman's Brown rank correlation formula ($r = 0.98$). After conducting the pre-test, a structured teaching program was administered, and the post-test was conducted seven days later using the same questionnaire. **Results:** The pre-test findings revealed that 97.46% of the farmers had average knowledge and 2.53% had poor knowledge regarding safe handling and use of pesticides. In the post-test, 7.59% of the farmers demonstrated good knowledge and 92.40% had average knowledge, while none of the participants remained in the poor knowledge category. The findings showed a significant improvement in knowledge after the structured teaching program. **Conclusion:** The structured teaching program was effective in improving farmers' knowledge regarding the safe handling and use of pesticides. The study highlights the importance of educational interventions in reducing health risks and promoting environmental safety.

KEYWORDS

INTRODUCTION

Background of the Study

Safe handling and use of pesticides involve the proper methods of acquiring, transporting, storing, mixing, applying, and disposing of pesticides in order to minimize hazards to human health and the environment. Public awareness regarding pesticide safety is essential for preventing health risks and environmental contamination. Structured teaching programs can effectively improve farmers' knowledge regarding safe pesticide handling and use.

Need of the Study

In 2020, global pesticide use hit 3.39 million tonnes (\$30 billion market). India ranks second in Asia, consuming 61,702 tonnes in 2020, including 982.38 metric tonnes in West Bengal (2020–2021). Driven by intensive farming, India's production surged from 5,000 metric tonnes in 1958 to 85,000 tonnes today across 145 chemicals, supporting a rural population 75% dependent on agriculture.

Problem Statement

A study to find the effect of structured teaching program on knowledge regarding safe handling and use of pesticides among farmers in Bagore, Murshidabad.

Purpose

This study aims to evaluate the effectiveness of a structured teaching program in improving knowledge regarding safe handling and use of pesticides among farmers.

Objective

1. To assess the level of knowledge regarding safe handling and use of pesticide among farmers.
2. To find the effect of structure teaching program on knowledge regarding safe handling and use of pesticide among farmers.
3. To find the association between pre-test knowledge level regarding safe handling and use of pesticides among the farmers with their selected socio demographic variable.

Operational Definition Knowledge

In this study, knowledge refers to the extent of information possessed by farmers regarding the safe handling and use of pesticides, as measured by a structured knowledge questionnaire.

Structured Teaching Program

In this study, the structured teaching program refers to a planned teaching strategy developed to provide information regarding the safe handling and use of pesticides among farmers.

Farmer

In this study, farmers refer to adults aged between 30 to 60 years who are actively engaged in agricultural work in the selected community.

Hypothesis

H1: The mean post-test knowledge score regarding the safe handling and use of pesticides among farmers is significantly higher than the mean pre-test knowledge score at the 0.05 level of significance.

H2: There is a significant association between pre-test knowledge

regarding the safe handling and use of pesticides and selected socio-demographic variables at the 0.05 level of significance.

Delimitation

1. The study is delimited to farmers aged between 30 and 60 years.
2. The study is delimited to a selected rural community of Bagore.

Conceptual Framework

The conceptual framework of the present study is based on the General System Theory (GST).

Review of Literature

The literature review is organized under the following sections-
Section A- Knowledge of farmers regarding safe handling and use of pesticides
Section B- Effectiveness of structured teaching program to improve knowledge regarding safe handling and use of pesticides.
Section C-Safe handling and use of pesticides.

Methodology

Research Approach

In the present study quantitative evaluative research approach was used.

Research Design

In the present study pre-experimental one group pre-test post-test design was used.

Setting of the Study

Main Study- The main study was conducted in Bagore, Nabagram

Pilot Study- Amritakundu, Nabagram

Population

In the present study the population refers to all the farmers of selected rural community.

Target Population

In the present study, the target population refers to all farmers aged between 30-60 years.

Sample

All farmers who are between 30-60 years of age and meet the inclusion criteria.

Sample Size

Main Study

79 farmers.

Sampling Technique

Non-probability convenience sampling technique was used.

Sampling Criteria

Inclusion Criteria

1. Farmers who are willing to participate.
2. Farmers, age group between 30-60 years.

Exclusion Criteria

Farmers who were seriously ill or unable to respond during the data collection period.

Variable of the Study

Dependent Variable

Knowledge regarding safe handling and use of pesticide

Independent Variable

Structured teaching program

Demographic Variable

Age, gender, education, housing type, annual income, duration of farming, years of experience in using pesticide.

Development of Tools & Techniques

In the present study total two tools were used.

Tools	Technique
Interview schedule for socio-demographic information	Interview
Structured knowledge questionnaire	Interview

Validity of the Tool

In the present study the tool and content were validated by nine experts from the different specialty of nursing field.

Tool I: Interview Schedule on Socio-demographic Characteristics

Among 13 items, 12 items got 100% agreement and 1 item was removed as per the validator's suggestion.

Tool II: Structured Knowledge Questionnaire

Among 30 items, 24 items got 100% agreement and remaining 6 items were modified as per validator's suggestion.

Reliability of the Tool

In the present study reliability of the tool was tested by using split half method and Spearman Brown formula. The value was 0.98, which is more than 0.80, generally considering a strong positive reliability.

Ethical Consideration

To conduct the main study permission is obtained from

- Principal of GitaRam Institute of Nursing
- BMOH, Nabagram
- Written consent from the study sample subject

Plan of Data Collection

1. Primarily permission was taken from Principal, GitaRam Institute of Nursing followed by BMOH, Nabagram.
2. Written inform consent was taken from the study sample.
3. Assessed the pre-test knowledge regarding safe handling of pesticide among farmer by structured knowledge questionnaire.
4. Conducted structured teaching program to the participant on the same day.
5. After Seven days, assessed the post-test knowledge by the same structured knowledge questionnaire.
6. Thanking to all the sample.

Plan of Data Analysis

1. Description of socio demographic characteristics using frequency percentage.
2. Analyze level of knowledge regarding safe handling and use of pesticide using frequency percentage.
3. Analyze effect of structure teaching program regarding safe handling and use of pesticide among farmers using paired t-test.
4. Analyze association between knowledge level among farmer with their socio demographic variables using chi square or fisher exact test.

Data Analysis & Interpretation

Section A: Frequency Percentage Distribution of Farmers According to their Socio Demographic Characteristics.

The socio-demographic profile of the 79 farmers shows clear majority trends across several factors. Most farmers were in the age group of 41–50 years, predominantly male, and overwhelmingly married. In terms of education, the largest proportion had primary schooling, while only a small fraction reported no formal education. Farming was mainly crop-based, with most farmers owning land larger than 3 katha. The majority had 7–15 years of farming experience, indicating a moderately experienced group.

Regarding pesticide practices, most farmers used mixed types of pesticides and applied them only when needed. Spraying was largely done by the farmers themselves, and pesticides were mainly purchased from authorized shops. However, a significant majority reported receiving no safety information, highlighting a gap in awareness and training.

Section B: Level of Knowledge Among Farmers in Pretest and Post-test.

Table No.1: Depicts Range, Mean, Median and Standard Deviation of Pre and Post-test Knowledge Score. n=79

Sl. No	Knowledge Assessment	Range	Mean	Median	Standard Deviation
1	Pre test	15	19	17.5	3
2	Post -test	12	22	22	3

Frequency Polygon of Pre-test and Post-test Knowledge Scores (n = 79)

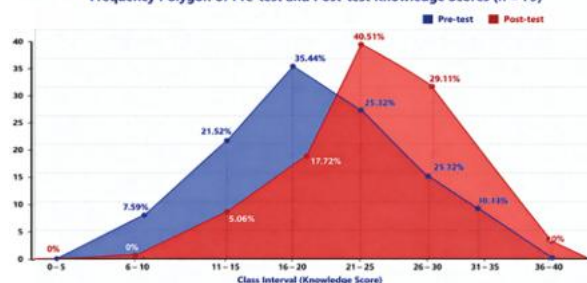


Table No. 2: Shows Level of Knowledge Regarding Safe Handling and Use of Pesticides Among Farmers in Pre-test. N=79

Level of knowledge	Frequency (f)	Percentage (%)
Good knowledge (> 25) > Mean+2SD	-	-
Average knowledge (13-25) Mean±2SD	77	97.46%
Poor knowledge (<13) < Mean-2SD	2	2.53%

Table No. 3: Shows Level of Knowledge Regarding Safe Handling and Use of Pesticides Among Farmers in Post-test.

Level of knowledge	Frequency (f)	Percentage (%)
Good knowledge (> 28) >Mean+2SD	6	7.59%
Average knowledge (16- 28) Mean±2SD	73	92.40%
Poor knowledge (< 16) < Mean-2SD	-	-

Section C: Effect of Structured Teaching Program on Knowledge Regarding Safe Handling and Use of Pesticides Among Farmers.

The pre-test mean score was 19 with a mean deviation of 3 and a standard deviation of 3. After the intervention, the post-test mean score increased to 22 while the standard deviation remained constant at 3. The paired t-test value of 12.4 indicates a statistically significant improvement in knowledge following the teaching program.

Section-D: Association Between the Level of Knowledge Regarding Safe Handling and Use of Pesticides Among the Farmers with their Selected Socio-demographic Variables.

Across all variables studied — including age, gender, educational status, marital status, type of farming, land size, farming experience, types of pesticide use, frequency of pesticide use, spraying method, purchase source, and safety information the calculated values did not exceed the tabulated values, and all p-values were greater than 0.05.

Thus, no socio-demographic variable showed a statistically significant association.

CONCLUSION

The structured teaching program was effective in improving farmers' knowledge regarding the safe handling and use of pesticides. The study highlights the importance of educational interventions in reducing health risks and promoting environmental safety.

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