

Summary

Nearly 80% of work force in Egypt are involved in agriculture and exposed to agriculture aerosols. Unlike other occupation they live in the same environment and thus exposure for them and their children continue over the weak. Agriculture workers and those living in rural environment are at increased risk of developing lung diseases (**ELsobky, 2014**). Pesticides are chemical substances used to protect agricultural crops and they have helped limit and control the spread of certain human diseases, such as malaria. However, pesticides also endanger humans and the environment (**Kesavachandran et al., 2009**).

The World Health Organization and United Nations Environmental Program have estimated one to five million cases of pesticide poisoning among agricultural workers each year with about 20,000 fatalities, mostly reported from developing countries. Farmers of developing countries need educational programs to improve their awareness related harmful effects of pesticides and necessary precautions and help them to translate this awareness into practice (**Elwakeil et al., 2012**).

- **The aim of the study** was to examine the effect of health hazards intervention against pesticides exposures on farmers' knowledge, practice and self reported symptoms. The study was carried out in Shentena-elhagar village, Birket El-sab,ei district at Menoufia governorate. Simple random sample was used to select the village then all vegetable growing farmers were selected to participate in the study. The number of farmers was 86. The data collection was completed between November 2015 to the end of April 2016.

To achieve the aim of the study, data was collected by the following tools:

Interviewing Questionnaire developed by the researcher: that included:

I Interviewing Questionnaire: it was developed by the researcher after reviewing the literature to collect the necessary data from workers and include the following:

A- The first part was designed to assess demographic and occupational characteristics of the farm workers such as (age, level of education, experience, working hours).

B- The second part was designed to assess workers' knowledge about pesticides that composed of three main items of knowledge:

1- Health hazards of pesticides exposure (pre/ post test), it consisted of 10 questions about accumulation of pesticide in the body, exposure to pesticide leads to: cancer, neurological troubles, depressed immunity, chronic respiratory diseases, poisoning, and abortion for pregnant,etc.

2- Safety practices (pre/ post test), it consisted of 11 questions about disposal of containers, spray in wind and rain, spray in hot weather, eating and drinking during spray,etc.

3-First aides of pesticide poisoning, it consisted of 23 questions related to five main items as follow (general principles, skin contamination, eye contamination, inhalation, swallowing).

II. Checklist:-

A. Observational Checklist for Farmers' use of different personal protective devices such as safety glasses', apron, mask, goggles, etc.

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B- Checklist for self-reported symptoms of acute pesticides poisoning, was used to assess its prevalence; it included 20 questions related to five systems as follow (nervous system, GIT, respiratory system, dermatological, cardiovascular system).

Based on the findings of this study, it was concluded that:

- After educational intervention program there was statistical significant improvement in the total level of knowledge among studied workers. The current study revealed that 80.2% of studied workers had satisfactory knowledge after intervention compared with 17.4% before intervention.
- There were statistical significant differences between age, educational level& years of experience and total level of knowledge of studied workers.
- Regarding use of safety measures there was statistical significant improvements in the mean score in the post test (8.90 ± 1.88) compared to pretest (3.35 ± 1.63). The data of current study revealed that the safety practices of workers about insecticides use improved after implementation of the educational program. There were highly significant differences at all items ($p = 0.001$).
- There were statistical significant differences between age, educational level& years of experience and total use of safety practices among studied workers
- After educational intervention the data clarified that there was statistical significant reduction in the rate of all manifestations compared to the rate of manifestation among studied workers after intervention ($P < 0.05$).

Recommendations

Based on the findings of this study, the following recommendations were suggested:

- More effective implementation of health education program and proper training are needed to improve awareness, practices of farmers about pesticide use
- Perform periodic inspection of farmers' use to safety measures during pesticide application.
- Activate the role of occupational health nurse in agriculture sector by facilitating periodic visits to farmers to perform workplace assessment to ensure it doesn't affect farmers' health, develop & implement the most suitable educational program to farmers
- Further researches on Egyptian farmers are needed to produce more accurate data about their knowledge and level of using safety practices during pesticide application.
- Explore and implement new strategies that motivate farmers to use safety measures.

