

## **ABSTRACT**

### **Background**

This observation has noted the usage of Organophosphate pesticide during agricultural practice. Several studies has confirmed the neurotoxic effects of the pesticide, towards both the pyramidal and extrapyramidal system. This research aims it focus on the significance of PPE protection; through recording the performance of motoric effectors in the upper/lower extremities, quadriceps, and femoral muscularity; whilst also considering the degree of pesticide exposure respectively.

### **Objective**

This research aims to determine whether there is any association between the uses of Personal Protective Equipment (PPE) in farmers exposed to Organophosphate pesticides to the incidence of Muscle Weakness in Ngaglik, Seloprojo, and Pernolo communities of Ngablak, Magelang District, Central Java.

### **Method**

This research will be a cross-sectional study. Samples were taken from questionnaire datas filled in by farmers in Ngaglik, Seloprojo, and Prenolo communities of Ngablak, Magelang District, Central Java. Usage of PPE will be recorded from the questionnaire. Cholinesterase concentration in blood plasma will be measured to determine the degree of pesticide exposure. Motor neuron weakness will be tested by neuromuscular and DNE examinations. The datas will then be compared using Regression Analysis to determine the association between the variables.

### **Result**

The distribution of PPE usage score is higher in farmers with no muscle weakness. Nonparametric test of Mann-Whitney Non Parametric Quality Test was conducted and it showed the P-Value  $< 0.05$ . This data has confirmed that the incidence of muscle weakness is associated with the high number of non-complying farmers towards the use of Personal Protective Equipment.

### **Conclusion**

The use of PPE has proven to give protective effect towards muscle weakness exposed to pesticides. The more the farmers use PPE, the less likely the farmers develop muscle weakness.

**Keyword(s):** PPE; Exposure; Pesticide; Organophosphate; Anticholinesterase; Neurotoxicity; Motor Neuron; Muscle Weakness