Relationship Between the Level of Safe Behavior, Knowledge, and Demographic Variables of Farmers in the Use of Agricultural Pesticides

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ABSTRACT

Introduction: Using pesticide is essential for crop protection and food security in modern agriculture. However, improper pesticide handling poses risks to farmers and the environment. This study investigated how social demographic factors and farmers' knowledge influence their safe behavior in pesticide application.

Methods and Materials: This cross-sectional study was conducted on farmers from 1401 to 1402 in Mashhad, Iran. A sample size of 200 farmers was selected using cluster random sampling from 1,000 agricultural farms in the Mashhad region. A questionnaire was developed to assess demographics, knowledge, and behavioral constructs. Data analysis was conducted using SPSS 16 software.

Results: Demographic analysis revealed that 72.4% of participants were male, with 46.17% aged between 21-67. Additionally, 61% were married, 59.6% held a diploma, and 42.8% had 4-6 family members. Notably, 54.4% were smokers, 67.1% worked 5-8 hours daily, and 49.6% had over 36 months of work experience. Based on the results, only 28% of the participants were aware of how to use poisons, the safety of their storage, personal safety during and after using poisons, and the adverse effects of poisons. The results showed a significant relationship between the opinion of the safe use of poisons, gender (p = 0.001), and people's knowledge (p = 0.026) of the safe use of poisons (p = 0.05); thus, the unsafe behavior in male people was three times that of female people.

Conclusion and Discussion: The study highlights farmers' need for pesticide awareness, leading to inadequate safety measures during application. Gender disparities were evident, with men displaying significantly riskier behaviors than women. Unmarried and less educated farmers were more susceptible to pesticide-related health issues. To enhance pesticide safety, interventions should focus on comprehensive pest management training, proper protective equipment usage, and improved healthcare access for pesticide-related illnesses.

Keywords: Agriculture, Herbicides, Pesticides

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