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ORIGINAL RESEARCH **E-ISSN:**

PROACTIVE PUBLIC HEALTH APPROACH TO PREVENTION OF OCCUPATIONAL DISEASE ON FARMERS IN LUMAJANG

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ABSTRACT

Background: Occupational Disease is a disease caused by work, work tools, materials, processes, and work environment. Safe work behavior is a systematic application of someone to work on safety issues in the workplace to avoid work-related illnesses. Through the Proactive Public Health Approach, it is expected to be able to prevent Occupational Diseases.
Objective: This study aimed at analyzing the relationship between occupational disease and proactive public health approaches in Lumajang District.
Methods: This research is quantitative research, which used a descriptive-analytic study with cross-sectional. The sample in this study was 164 respondents from February until May 2019, with the sampling method using purposive sampling. Data presented in the form of Spearman's Rho Correlation test 0.05 statistical test with a value of α.
Results: Based on the results of data analysis by most respondents (50.6%), the proactive public health approach is a category, and having an occupational disease is often a category (54.3%). The results of data analysis used Spearman's Rho showed that p-value = 0.001 with correlation coefficient r = 0.674 means the level of relationship is a strong category.
Conclusion: Trauma and pesticides cause problems of occupational diseases that arise often. Farmers are expected to pay more attention to the method or method of using and preventing occupational diseases. So, the role of nurses or Occupational Health Nursing (OHN) in agriculture must be increased.

Key words: Occupational illness, pro-active public health approach, farmer.

INTRODUCTION

In Indonesia, the agricultural sector is one type of work that has a high risk for workers, extreme environmental conditions, and how to use technology in the field of land management that is still sufficient about the level of health and safety of farmers. One of the health and safety problems that are often experienced by workers, such as farmers is ergonomic problems. Health problems that occur in agriculture have taken the opponent from the challenges that arise on agriculture. The number of fatalities that occur due to lack of knowledge and skills of the community in health management in agriculture. This seems to be a compilation of more indigenous people who received negative impacts from repeated improvements in agriculture.

Occupational Disease is a disease caused by work, work tools, materials, processes or the work environment so that occupational diseases are that are artificial or human-made disease defined as diseases made themselves in the process of work done by humans (Silalahi, 2006). World Health Organization (WHO), 1985; in

Sulaksmono, 2009) explaining occupational diseases is the link between causative factors in the emergence of occupational diseases and entirely ascertained these factors can be identified, measured, and controlled. Occupational illnesses divided into several groups, namely environmental groups, chemical groups, biological groups, psychological groups, and physiological groups. Health problems that occur in the field have claimed hundreds or even thousands of human lives due to chronic illness due to work in the agricultural area. The number of fatalities that occur due to lack of knowledge and basic skills of the community in health management in agriculture. This can be seen when there are many people, especially farmers, who hurt work-related diseases in the agricultural area.

Working position by bending causes the muscles to become tenser. A worker who works in a bent position requires greater muscular endurance; this causes a more significant burden on the spine and triggers the emergence of musculoskeletal pain (Wicaksono, 2011). Based on the initial survey conducted, it found that 30% of farmers complained of suffering from lower back pain. Obtained 90% of cases of low back pain are not caused by organic abnormalities, but by errors in body position at work.

Farmers are people who have an important role in the farming process to make autonomous and appropriate decisions about existential farming processes to produce the desired crop. Farmers play two essential roles related to the farming business, which include the role of a farmer (cultivator) and manager (Nasoetion, 2002 in Intani, 2013). Workers in the agricultural sector reach 41.20 million or around 43.4% of the total population of Indonesia. This figure has increased by 4.76% or 1.9 million compared to August 2011. Indonesia ranks 3rd in the world after China (66%) and India (53.2%). This shows that the average livelihood of the Indonesian people is as farmers (Badan Pusat Statistik, 2012). Based on the results of records from the Indonesian Ministry of Health's Data and Information Center (2014) and BPJS Employment (2018) the number of work accident cases in Indonesia from 2011 to 2017 has fluctuated, the highest figure in 2015 was 110,285 cases. In 2011 there were 9,891 cases; in 2012 there were 21,735 cases; in 2013 35,917 cases, in 2014, there were 24,910 cases.

Extreme environmental conditions and the way and use of technology in managing land that is still quite behind compared to other regions determine the level of health and safety of the farmers (Dewi, Sutresna, & Susila, 2017). The facilities that support agriculture include agricultural equipment, artificial fertilizers (Urea, TSP, NPK, Za, etc.), additional chemicals, including pesticides (Sungkawa, 2008). The highest demands for increased profits and salvage of production in the agricultural industry result in unavoidable use of pesticides. The large percentage of workers who work in the agricultural sector and the widespread use of uncontrolled pesticides results in problems or risks of pesticide intoxication (poisoning) in the community becoming a severe problem (Purnawati, 2008).

The high intensity of pesticide use, and carried out continuously in every planting season will cause several losses, including pesticide residues that will accumulate in agricultural products and waters, pollution in the agricultural environment, poisoning in animals, poisoning in humans and thus adversely affect human health (Pacific, 1999). The adverse effects of these pesticides are not only about farmers or workers who spray pesticides, but also

about families and neighbors where the activity is carried out. Pesticide poisoning can be acute or chronic. Acute pesticide poisoning is local and systemic. Systemic pesticide poisoning can attack the kidneys and urinary tract, nervous system, liver or liver, stomach, immune system, and hormonal balance (Department of Health Examination, 1992).

The use of pesticides by farmers is increasing every day, but it balanced with farmers' knowledge about the effects of pesticides. A poor experience will affect the behavior or practices of farmers when working (Yuantari et al., 2013). Many farming communities are still not aware of the dangers that can be caused by the use of pesticides; they again underestimated when there is trauma or disease due to the impact of pesticides.

According to Bond and Fried Meyer, work behavior is the ability to work and responses where it is essential in every job or work situation. Safe work behavior is a systematic application of someone to work on safety issues in the workplace to avoid work-related illnesses (PAK). Safe work behavior places more emphasis on aspects of human behavior towards workplace accidents and diseases.

Health promotion in the sense of education, in general, is all efforts planned to influence other people, individuals, groups or communities so that they do what is expected by the perpetrators of education or health promotion and this limit implies elements of input, process, output. The expected results of health promotion or education are health or behavioral behaviors to maintain and improve conducive health improve the quality of farmers' health and avoid the effects of acute intoxication and long-term use of pesticides; a strategy is needed to anticipate aspects of impact through the Total Ergonomics approach. TEA (Total Ergonomics Approach) is an approach that includes the SHIP approach (Systemic, Holistic, Interdisciplinary and Participatory) and Appropriate Technology considerations in the design of work tools and work systems (Manuaba A. 2005) in (Purnawati, 2008). With the preparation of anticipatory strategies for the impact of pesticide intoxication on farmers, it expected that future use of pesticides could meet safety standards so that the quality of life of farmers and the wider community can be improved (Purnawati, 2008). One method of health education in existing nursing is the demonstration method, namely nurses and officers provide direct knowledge and examples of PPE that are by the work of farmers in the hope of increasing awareness and motivation for using PPE on farmers (Susilo, 2011).

The agricultural nursing-based Occupational Health and Safety (PK3) approach at the public health center aims to improve occupational health services to be more directed at community participation. This approach is expected to meet the need to establish or establish primary health care units in the community through health services that are promotive, preventive, curative and rehabilitative through a nursing care approach in the community with a method to specialized groups of workers (Susanto, Purwandar, & Wuryaningsih, 2016).

Based on this background, the research question emerged about "How is the relationship between Occupational Diseases and Proactive Public Health Approaches to Farmers in Lumajang."

METHODS

Study Design

This research was quantitative research, which used a descriptive analytic study with cross-sectional.

Setting

The study conducted in Lumajang District from February until May 2019.

Research Subject

The research population was farmers in Lumajang District. The sample in this study was 164 respondents with the sampling method using purposive sampling.

Instruments

Proactive public health approach will be done by technique health education, medical examination, and use personal protective equipment. The tool used for occupational assessment illness used questionnaire about the incidence of disease in agriculture due to injury, trauma, known trauma, and pesticides.

Data Analysis

This study presented in the form of Spearman's Rho Correlation statistical test with a value of $\alpha \leq 0.05$.

Ethical Consideration

Before collecting data, the researcher conducted ethical clearance from the Ethics Committee of Faculty of Dentistry on February 29, 2019 number: 341/UN25.8/KEPK/DL/2019. The authors confirmed that all respondents had obtained appropriate informed consent.

RESULTS

Characteristics of Respondents

Based on the results of the statistical analysis in Table 1, the data on respondents' characteristics showed that the majority of respondents were male (54 %) had the last education of elementary school (65%) and work become farmers (70%).

Table 1. Distribution of Frequency of Respondents in the Lumajang District (n = 164).

Characteristics		n = 164	
		Frequency	%
Gender	Male	89	54
	Female	75	46
Last education	No education	11	7
	Elementary school	107	65
	Junior high school	21	13
	Senior high school	18	11
	Others	7	4
Job	Farmer	115	70
	Farmworker	49	30

Examination of Relationship between Proactive Public Health Approach and Occupational Disease

Table 2. Relationship between Proactive Public Health Approach and Occupational in the Lumajang District (n = 164).

Parameter	n = 164	
	Frequency	%
Proactive public health approach		
Minus	2	1.2
Moderate	47	28.7
Medium	83	50.6
Good	27	16.5
Very good	5	3
Occupational illness		
Often	89	54.3
Rarely	32	19.6
Never	43	26.1
p-value = 0.001		
r = 0.674		

Based on the results of data analysis in Table 2, most respondents (50.6%) a proactive public health approach is a medium category and had an occupational illness is often category (54.3%).

The results of data analysis used Spearman's Rho showed that the significance value was α = <0.05 with *p*-value = 0.001. It showed that the research hypothesis accepted with correlation coefficient r = 0.674 shows the level of relationship is a strong category.

DISCUSSION

The risks that occur caused by the use of machines that are a source of noise, heavy working tools and the smell/dust of the environment/production sites so that it certainly has the potential to cause workplace accidents and work-related diseases. Another result is that the disease caused by work is also increasing so that it can cause harm to workers. Occupational diseases are abnormal conditions or diseases caused by vulnerability to work-related environmental factors. This includes acute and chronic diseases caused by breathing, absorption, digestion, or direct contact with toxic chemicals or dangerous introductory substances (Kurniasih, 2013). Research (Suhari et al., 2018) that some farmers have chronic diseases and the amount of drinking intake that is less than one liter per day causes the higher risk of occupational diseases to occur in farmers.

Another factor that triggers accidents in agriculture is the limited time available to complete a work caused by climate constraints. This results in the rush of workers in completing work, which leads to indifference to their safety (Haerani, 2010). Some of the impacts of other trauma caused by agricultural machinery and equipment were 36%, had fallen 36%, and pierced by sharp objects 28% (Widianto, Maisyaroh, & Fibriansari, 2018).

Based on research (Fibriansari & Musviro, 2018) that most farmers experience low back pain of 48.8% due to excessive workload (42.6%), work posture (24.6%), work frequency (18%) and duration of work. (14.8%). In addition, the tenure of> 10 years has a 3.2 times greater risk of experiencing low back pain compared to a mandate of, 10 years, abnormal posture at work has a 2.5 times greater risk of potentially experiencing low back pain compared to average position body, lifting heavier weights> 5 kg risk 2.3 times greater experience low back pain compared to lifting weight <5 kg. The most dominant factor that affects low back pain together is work period (Syuhada & Setyaningsih, 2018)

Use of PPE by farmers when spraying pesticides using masks 17%, gloves 12%, googles 9%, caps 39, and special clothes 23%. The problem of pesticide poisoning, which can cause respiratory problems, chemical exposure dermatitis, cataract pneumatics, and chemical abrasion is the impact of the use of pesticides (Widianto, Maisyaroh, & Fibriansari, 2018). Improper level of knowledge of farmers in using pesticides should be improved. Inappropriate experience in using pesticides will affect the behavior or practices that are also inappropriate by farmers on agricultural land. Increasing farmers' knowledge will be more productive with participation from farmers and for farmers using community empowerment.

The most common types of trauma in 19%, followed by chemical exposure to pesticide poisoning and animals both with 10% each. The lowest incidence of trauma due to objects and injuries due to agricultural machinery with each occurrence of 1%. The sequence of causes of trauma occurring is chemical exposure of 29% and the% 3% and 1% respectively — Farmers 72% of actions against injuries in the area handled by themselves. And 28% taken to health services. This result indicates that the injuries have been very

diverse and significantly affect the health conditions of farmers (Maisyaroh, 2019).

The results of the study indicate a relationship between the proactive approach of public health and the prevention of occupational diseases with a strong level of relationship. Agricultural work varies significantly with the type of commodity and related work practices. Certain types of work practices highly identified as a higher risk of recurrent injuries. Such as harvesting small manual vegetables and fruits, meat processing, and dairy farming. When this injury or disorder is considered work-related, they identified as a work-related musculoskeletal disorder. The use of agricultural tools and machinery and the use of pesticides can significantly increase the productivity of agricultural products. But behind that, there are all risks or threats in their use, both the risk of trauma due to the use of agricultural machinery and equipment that is not by the procedure or the risk of acute or chronic pesticide poisoning. Therefore, health education is needed for farmers in the use of food or pesticides, so that farmers need to give an understanding of the dangers that occur in agricultural areas due to the use of agricultural equipment and machinery and exposure to pesticides, so farmers are more aware and more careful in using alms and wiser in using pesticides (Maisyaroh, 2019).

CONCLUSION

Trauma and pesticides often cause occupational illnesses that arise. Farmers are expected to pay more attention to the method or method of using and reducing work-related diseases. The role of nurses or Occupational Health Nursing (OHN) in agriculture must increase. Efforts to reduce the incidence of the increase in victims of health problems caused by the agricultural sector, one of which can do through a proactive approach to the delivery of information or education about health promotion that can be done with health education for farmers.

SUGGESTION

Future research is expected to reduce the incidence of occupational diseases through a proactive public health approach to farmers. The government as the owner of the policy is expected to pay more attention to the method or method of work by emphasizing the principles of objectives to improve work efficiency and productivity by providing education and training to workers regarding the use of agricultural machinery or correct pesticides so that farmers avoid the risk of occupational diseases.

DECLARATION OF CONFLICTING INTERESTS

None declared.

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