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Original Research Article

IDENTIFICATION OF FARMER INTEGRATED EMERGENCY RISK BASED ON AGRICULTURAL NURSING

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Abstract

Background: Lumajang Regency has the potential for disaster and agriculture that can trigger daily emergencies, especially for farmers. Nurses have an important role in overcoming integrated emergency problems related to agriculture.

Objectives: The aim of this study was to identify the threats, vulnerabilities, and capabilities of farmers in integrated emergency management based on agricultural nursing.

Methods: This study used a descriptive quantitative design through integrated emergency risk identification of farmers based on agricultural nursing. This research was conducted in agriculture and plantations in the Lumajang area over five months between 1st August to 31st December 2018. Participants in this study were farmers and plantations who were willing to be participants who were selected by cluster sampling as many as 357 respondents.

Results: The integrated emergency risk of agricultural nursing-based farmers in Lumajang Regency was in the high category. Farmers who do not have employment insurance occupy the very high vulnerability category. The danger of contact with chemicals belongs to the category of emergencies with large financial losses. The ability to get counseling about first aid during an accident is still low.

Conclusion: The integrated emergency risk (threats and vulnerabilities) of farmers in Lumajang Regency was still high and the ability of integrated emergency management of farmers based on agricultural nursing was still low. Reducing the emergency risk of integrated farmers based on agricultural nursing is urgently needed by increasing the capacity of farmers and reducing threats and vulnerabilities in agricultural areas.

Keywords: Vulnerability, ability, emergency, farmer, agricultural nursing.

INTRODUCTION

The majority of Indonesian workers work in the informal sector in rural areas, especially the agricultural sector. The emergency nursing

and disaster management module by the Indonesian Ministry of Health, 2016 states that emergency vulnerabilities include physical, economic, social, and environmental

vulnerabilities. In practice these threats focus on the promotion and restoration of health, prevention of acute and chronic diseases, and protection from occupational and environmental hazards, the agricultural sector is no exception. Three factors that cause an emergency in farmers, namely humans, agricultural facilities and infrastructure, and nature. The risks that can arise from humans include physical, cognitive, and psychomotor conditions. Meanwhile, the risks posed by infrastructure are chemicals (pesticides, fertilizers, other chemicals) and non-chemicals (agricultural tools). According to research conducted by Susanto T, et al in 2016 the risks of hazards faced in the workplace include noise, vibration, heat radiation, lack of lighting, installation of dangerous equipment without using personal protective equipment (PPE) for safety aspects, inhaling dust and exposed to hazardous chemicals, as well as poor ergonomics. Occupational Health and Safety is considered to reduce the risk of occupational diseases.

The agricultural nursing-based occupational health and safety approach in health centers aims to improve occupational health services to be more focused on community participation. This approach is expected to meet the need to establish or establish primary health care units through promotive, preventive, curative, and rehabilitative health services through a nursing care approach with an approach to special groups of workers (Susanto, Purwandari, & Wuryaningsih, 2016).

The disaster risk reduction framework is expected to provide a theoretical and practical basis for minimizing the impact of risks in the agricultural and health sectors on the welfare of farmers. Therefore, risk measurement and risk analysis are needed as a basis for determining risk status and recommendations for government assistance to farmers. Based on this background, it is considered important to conduct a risk assessment of threats, vulnerabilities, and capabilities of farmers and their environment in integrated emergency

management based on agricultural nursing. The results of the formulation become the basis for developing an empowerment and capacity-building model for stakeholders to reduce the risk of integrated emergency management for farmers based on agricultural nursing. The aim of this study was to identify the threats, vulnerabilities, and capabilities of farmers in integrated emergency management based on agricultural nursing.

METHODS

Study Design

This study used a descriptive quantitative design through the identification of vulnerabilities, threats, and abilities of farmers in integrated emergency risks based on agricultural nursing. Collecting data by survey method with cross-sectional data through questionnaires, interviews, and focus group discussions.

Setting

This research was conducted in agriculture (food crops and horticulture) and plantations (sugarcane and coffee) in the Lumajang area, over five months between 1st August to 31st December 2018.

Research Subject

The population in this study were farmers and planters who are members of agricultural groups under the guidance of field extension officers from the Agricultural Office in Lumajang.

The sampling technique used cluster sampling, which is the technique of determining the data sample by selecting the area to be studied. The method used is that from the 21 sub-districts in Lumajang Regency, 6 sub-districts were selected by considering the number of existing farmer groups, namely 4 agricultural groups and 2 plantation groups. The number of respondents who became the subject of this study was 357 people.

Instruments

The instruments of this study used demographic data of the respondents and also questionnaire that was adopted from PP No. 74 tahun 2001 concerning the management of hazardous and toxic materials in agricultural areas and Minister of Manpower Regulation Number 5 of 2018 concerning Occupational Safety and Health in the Work Environment. The questionnaire consists of 45 items using answer choice. After knowing the total results of the questionnaire, it will be categorized for the Vulnerability, threat, and ability description.

Data Analysis

Data analysis was carried out using two methods. Univariate analysis techniques using descriptive are presented in the form of distribution tables, and the Job Safety Analysis scoring method The Australian and New Zealand Standard on Risk Management

(AS/NZS) (Purdy, 2009), which is to assess integrated emergency risk parameters based on agricultural nursing. The risk level assessment is presented in table in table 1.

Ethical Consideration

This research has been submitted for permission to the research ethics committee of the Faculty of Dentistry, University of Jember number 140/UN5.8/KEPK/DL/2018. When the research was carried out, the researcher first communicated with the farmer groups that were targeted in this study. The communication was related to the purposes of this study, and provides an overview of the implementation of this research. After obtaining approval from the farmers group, the researcher determines the farmers who willing be respondents, then tells about the description of the implementation of this study and ask for their approval to be used in this study.

Table 1. Risk Parameter Scoring.

| Occurrence Percentage | Vulnerability | Threat | Ability | Score | Risk Level |
|-----------------------|-------------------------|---|----------------|-------|-----------------|
| 0-20 | Not vulnerable | Not urgent and not Emergency, little Financial loss | Not capable | 1 | Very light risk |
| 21 -40 | Low Vulnerability | Non-emergency, Moderate financial loss | Less fortunate | 2 | Light risk |
| 41 - 60 | Moderate Vulnerability | No emergency not Emergency, moderate Financial loss | Quite capable | 3 | Medium risk |
| 61 - 80 | High Vulnerability | Non-emergency, big Financial loss | Capable | 4 | High risk |
| 81-100 | Very high Vulnerability | Emergency, big financial Loss | Very capable | 5 | Very high risk |

Integrated emergency risk assessment based on agricultural nursing uses the formula determined by the Head of the National Disaster Management Agency (BNPB) Number 2 of 2012 concerning General

Guidelines for Disaster Risk Assessment, namely with the formula:

$$\text{Risk} = \frac{\text{Vulnerability} \times \text{Threat}}{\text{Ability}}$$

RESULTS

Characteristics of Respondents by Demographic Data

Table 2. Distribution of Respondents Characteristics by Demographic Data in the 6 Sub-District of Lumajang Regency on August to December 2018.

| No | Characteristics of Respondents | Frequency (f) | Percentage (%) |
|-------------------|--------------------------------|---------------|----------------|
| 1. Gender | Man | 191 | 54 |
| | Woman | 166 | 46 |
| 2. Education | No school | 27 | 7 |
| | Elementary school | 230 | 65 |
| | Junior high school | 46 | 13 |
| | Senior high school | 38 | 11 |
| | Other | 14 | 4 |
| 3. Marital Status | Marry | 353 | 98 |
| | Widow | 2 | 1 |
| | windower | 2 | 1 |
| 4. Job Status | Farmer | 196 | 70 |
| | Farm workers | 83 | 30 |

Sources: Primary Data of Questionnaire, 2018.

Table 2 showed that more than half of the respondents (54%) are male and most (65%) have an elementary school education. Almost all (98%) of respondents' marital status is married and most (70%) are farmers.

Vulnerability

Based on table 3, it is found that the parameter of not having employment insurance occupies a very high vulnerability category with a score of 5 and a percentage of 97%. Then followed by the parameter of not having BPJS health insurance in the high vulnerability

category with a score of 4 and the percentage of 76%. The parameter of farming duration is >10 years with a high vulnerability category with a score of 4 and a percentage of 65%. The parameter of eating 1-3x/day is in the high susceptibility category with a score of 4 and a percentage of 75%. While the lowest vulnerability is in the parameter of working hours on agricultural land 8-10 hours per day, namely the non-vulnerable category with a score of 1 and a percentage of 5%.

Table 3. Vulnerability of Farmers in the 6 Sub-District of Lumajang Regency on August to December 2018.

| No. | Parameter | Amount | | Evaluation | | |
|-----|-------------------------------------|--------|----|------------|--------|--------|
| | | n | % | Score | Rating | Weight |
| 1 | Working time in the field 8-10 hour | 18 | 5 | 1 | 0,05 | 0,05 |
| 2 | Length of Work in 1 month 10-20 day | 171 | 48 | 3 | 0,05 | 0,15 |
| 3 | Farming Time Farmer >10 years | 228 | 65 | 4 | 0,1 | 0,4 |
| 4 | No holidays in a month | 73 | 20 | 2 | 0,05 | 0,1 |
| 5 | Drink For 1 Day <1 liter | 115 | 32 | 2 | 0,2 | 0,4 |
| 6 | Eat in 1 day 1-3x/day | 267 | 75 | 4 | 0,05 | 0,2 |
| 7 | Weight <40 kg | 75 | 21 | 2 | 0,15 | 0,3 |
| 8 | have certain chronic diseases | 95 | 27 | 2 | 0,15 | 0,3 |

| No. | Parameter | Amount | | Evaluation | | |
|--------------------|---|--------|----|------------|----------|-------------|
| | | n | % | Score | Rating | Weight |
| 9 | Income per harvest / month (100-500 thousand) | 117 | 33 | 2 | 0,1 | 0,2 |
| 10 | Do not have insurance / BPJS | 229 | 76 | 4 | 0,05 | 0,2 |
| 11 | Do not have employment insurance | 339 | 97 | 5 | 0,05 | 0,25 |
| TOTAL VALUE | | | | | 1 | 2,55 |

Sources: Primary Data of Questionnaire, 2018.

Threat

Based on table 4, it was found that the parameters of contact with chemicals including the category of emergencies situations with large financial losses had a score of 5 and the percentage was 95%. Parameters that have the same score include being exposed to sharp tools and having experienced crop failure with the percentages of 81% and 88%, respectively. The

parameters with the lowest threat are in the non-emergency and non-emergency categories as well as small financial losses. These parameters include wind damage with a percentage of 14% and irrigation difficulties in inland areas with a percentage of 18%, each of which has a score of 1.

Table 4. Threats to Farmers in the 6 Sub-District of Lumajang Regency on August to December 2018.

| No. | Parameter | Amount | | Evaluation | | |
|--------------------|---|--------|----|------------|----------|-------------|
| | | n | % | Score | Rating | Weight |
| 1 | Wind damage | 49 | 14 | 1 | 0,05 | 0,05 |
| 2 | Land slope 30 ⁰ - 45 ⁰ | 81 | 23 | 2 | 0,05 | 0,1 |
| 3 | Irrigation difficulties in the land area | 29 | 8 | 1 | 0,05 | 0,05 |
| 4 | Plants attacked by pests | 222 | 64 | 4 | 0,05 | 0,2 |
| 5 | Insect pests that often attack | 132 | 41 | 3 | 0,05 | 0,15 |
| 6 | Get bitten by an animal | 153 | 43 | 3 | 0,1 | 0,3 |
| 7 | Direct contact with chemicals | 338 | 95 | 5 | 0,25 | 1,25 |
| 8 | Once a week contact with Chemicals | 149 | 44 | 3 | 0,1 | 0,3 |
| 9 | The type of chemical that has the highest contact with insecticides | 175 | 57 | 3 | 0,05 | 0,15 |
| 10 | Get hit by a sharp tool | 228 | 81 | 5 | 0,05 | 0,25 |
| 11 | Exposed to agricultural machine tools | 117 | 36 | 2 | 0,05 | 0,1 |
| 12 | Ever fall | 121 | 36 | 2 | 0,05 | 0,1 |
| 13 | Stabbed by a sharp object | 116 | 28 | 2 | 0,05 | 0,1 |
| 14 | Have you ever experienced crop Failure? | 316 | 88 | 5 | 0,05 | 0,25 |
| TOTAL VALUE | | | | | 1 | 3,35 |

Sources: Primary Data of Questionnaire, 2018.

Ability

Based on table 5, the best criteria starting from the parameter of spraying according to the procedure with a score of 5 means having the ability to be very capable, compared to the parameter using soap when washing hands with a score of 2 meaning having the ability to be less capable, the parameter getting counseling about pesticide exposure with a score of 2 meaning having competence underprivileged,

the parameter of getting APD counseling with a score of 2 means having the ability to be less able, the parameter binding the body part that is bitten by an animal with a score of 1 meaning having incapacitated competence, the parameter getting counseling about first aid during an accident in agriculture with a score of 1 meaning having the ability to be unable, the parameter of getting counseling when exposed

to animal bites with a score of 1 means having the ability to be unable.

Table 5. Ability of Farmers in the 6 Sub-District of Lumajang Regency on August to December 2018.

| No. | Parameter | Amount | | Evaluation | | |
|--------------------|--|--------|----|------------|----------|-------------|
| | | n | % | Score | Rating | Weight |
| 1 | Recognize the dangers of labels | 139 | 41 | 3 | 0,04 | 0,12 |
| 2 | Using PPE while working | 164 | 49 | 3 | 0,1 | 0,3 |
| 3 | Washing hands after chemical Contact | 256 | 76 | 4 | 0,04 | 0,16 |
| 4 | Use soap when washing hands | 77 | 28 | 2 | 0,1 | 0,2 |
| 5 | Spray according to procedure | 334 | 98 | 5 | 0,07 | 0,35 |
| 6 | Warehouse / special place to store Chemicals | 149 | 42 | 3 | 0,05 | 0,15 |
| 7 | Washing when exposed to excessive Amounts of chemicals | 194 | 48 | 3 | 0,04 | 0,12 |
| 8 | Cover the wound when hit by a sharp object | 211 | 50 | 3 | 0,04 | 0,12 |
| 9 | Bind the body part that was bitten by an animal | 66 | 16 | 1 | 0,04 | 0,04 |
| 10 | Get education about pesticide Exposure | 94 | 27 | 2 | 0,12 | 0,24 |
| 11 | Get counseling about first aid when there is an accident on the farm | 44 | 12 | 1 | 0,12 | 0,12 |
| 12 | Get counseling when you get bitten by an animal | 53 | 15 | 1 | 0,12 | 0,12 |
| 13 | Get PPE counseling | 83 | 23 | 2 | 0,12 | 0,24 |
| TOTAL VALUE | | | | | 1 | 2,28 |

Emergency Risk

$$\text{Risk} = \frac{\text{Vulnerability} \times \text{Threat}}{\text{Ability}}$$

$$\text{Risk} = \frac{2.55 \times 3.35}{2.28} = 3.746 = 4$$

Based on the calculation formula for this risk, a risk value of 4 is obtained, which means: high risk, where farmers have a high risk of an integrated emergency based on agricultural nursing, especially direct contact with chemicals (95%) and the type of chemical with the highest contact is insecticide. (57%), with a frequency of contact once a week (44%), and duration of farming >10 years (65%) and length of work in 1 month 10-20 days (48%), length of work on the land 8-10 hours (5 %) and no holidays in a month (20%).

DISCUSSION

Vulnerability

Employment insurance and health insurance are important things that farmers should have. According to Markkanen (2004), health and safety guarantees can make workers feel comfortable and safe in doing a job, to minimize or even realize zero accidents and occupational diseases. However, the results of the study show that almost all farmers in

Lumajang Regency do not have employment and health insurance. This causes the risk of health threats and work accidents to be higher for farmers. Farmers need to take advantage of the protection from Social Security Administration Employment, both for employment social security programs in the form of Work Accident Insurance and Death Security Program. By joining Employment Social Security Administration, farmers will get protection from Employment Social Security Administration. All risks of work accidents that will be experienced by farmers at work and death will be the responsibility of Employment Social Security Administration.

The agricultural sector is one sector that in carrying out its work process there are positive and negative impacts. The negative impact is because the workforce always interacts with their work and the work environment that contains many hazards. Work safety is a state of avoiding danger when doing work. According to Suma'mur (1987), work safety is safety related to machines, aircraft, work tools, materials and processing processes, workplaces and their environment, and ways of doing work. Work safety concerns all processes of production and distribution of both goods and

services. Work safety is very dependent on the type, form, and environment in which the work is carried out.

The thing that affects the high number of work accidents in developing countries (including Indonesia) is the public's perspective on the importance of maintaining occupational health and safety. In developed countries, public awareness of the importance of occupational health and safety is very high, this is caused by the existence of adequate systems and laws and the law is strictly enforced. The Indonesian government has made efforts to make legal instruments for occupational safety and health that are quite complete, but legal instruments that are specific to agriculture are inadequate. This condition is exacerbated by weak law enforcement and low awareness, behavior, and attitudes to implement a culture of occupational safety and health (Topobroto HS, 2002).

Another consequence is that the disease caused by work is also increasing so that it can cause harm to workers. Occupational illness is an abnormal condition or disease caused by susceptibility to work-related environmental factors. This includes acute and chronic diseases caused by inhalation, absorption, digestion, or direct contact with toxic chemicals or dangerous agents (Kurniasih, 2013). Judging from the data that some farmers have chronic diseases, and the amount of drinking intake that is less than one liter per day causes a higher risk of occupational diseases that can occur in farmers.

This long working condition is also related to the working position which in this case is carried out by farmers, namely most of them work in a squatting position which results in the transfer of the fulcrum to the lower back so that complaints of pain usually arise in that part (Sylviyani, 2013). Period of work is the accumulation of a person's work activities carried out in the long term which if these activities are carried out continuously over for years can result in health problems. Someone who works more than 5 years will increase the

risk of low back pain compared to workers with less than 5 years of service (Susanto, 2016).

Threat

Farmers are the workers in the informal sector who need to pay attention to their health and safety. One of the health problems that are often encountered by farmers is the use of pesticides which are very risky and therefore dangerous (Kaligis, Pinontoan, & Kawatu, 2015). Based on the results of the study, it was found that the contact parameter with chemicals had the highest score on farmers in Lumajang Regency. According to Sulatri, 2012 these chemicals are pesticides used to kill plant pests. If it is not used properly, it can cause poisoning.

Another factor that triggers accidents in agriculture is the limited time available to complete a job due to climate constraints. This results in the rush of workers in completing the work, which leads to indifference to their safety (Haerani, 2010). This is in accordance with table 1 on the parameters affected by agricultural machine tools having a score of 2 with a percentage of 36%, having fallen has a score of 2 with a percentage of 36%, and being stabbed by a sharp object has a score of 2 with a percentage of 28%. These three things have the same level of a score, which is in the range of moderate financial losses, but this can worsen the safety of farmers if not handled properly because considering the length of time farmers work on the land requires sufficient existence in terms of safety that supports completing work on agricultural land.

Organophosphates are still the most widely used insecticides in the United States and the world, but plant-based insecticides and insect growth regulators are becoming much more widely used, due to their lower toxicity. Also included in this category are organochlorines (such as DDT), carbamates, and insect repellants (DEET and p-dichlorobenzene). The theory refers to the parameter of the type of chemical with the highest contact insecticide having a score of 3 with a percentage of 57%. The use of this insecticide type of pesticide indicates a

sufficient level of threat in agricultural activities with moderate financial losses, the use of this type of pesticide can trigger the threat of exposure to the impact of pesticides for farmers which can cause poisoning or the emergence of chronic problems on the health of the farmer.

The above table also describes the parameters related to the threat of the slope 30⁰-45⁰, which has a score of 2 with a percentage of 23%, while according to Arsyad in 2010 to explain the nature of topography that affect runoff and erosion are the slope and slope length. Other elements that may also have an effect are configuration, uniformity, and slope direction. The slope of the slope is expressed in degrees or percent. The steeper the slope, the greater the amount of runoff, the velocity of runoff, and the energy of surface runoff. The more sloping the slope, the greater the number of soil particles that are splashed to the bottom of the slope by the collision of rainwater droplets. The slope of the land is 30⁰-45⁰ can trigger erosion which raises various risks of other threats such as the risk of falling farmers due to soil texture and undirected height due to non-uniform soil texture.

The incidence of animal bites varies around the world. Bites tend to occur in the summer months as people interact with animals or are out in the countryside. The bites may be single or multiple and may affect other parts of the body. Wounds may become contaminated with infectious agents from saliva and other such parts as teeth or feces (Lessenger, 2006). In the table above, there are parameters for the threat of being bitten by an animal with a score of 3 and a percentage of 43%. Being bitten by this animal requires proper management to avoid a more widespread impact. The incidence of animal bites varies around the world. Bites tend to occur in the summer months as people interact with animals or are out in the countryside. The bites may be single or multiple and may affect other parts of the body. Wounds may become contaminated with infectious agents from saliva and other such parts as teeth or feces (Lessenger, 2006). In the

table above, there are parameters for the threat of being bitten by an animal with a score of 3 and a percentage of 43%. Being bitten by this animal requires proper management to avoid a more widespread impact.

Ability

To increase the level of technological capability of reducing pesticides, it is necessary to study the behavior of farmers and the factors that influence farmers' decisions to use pesticides. Farmers' perceptions of risk, perceptions of cultivar resistance, perceptions of the price and efficacy of pesticides, farmers' knowledge, counseling, and pest control influence farmers' decisions to use pesticides.

One indicator of the ability of farmers is to know the level of knowledge. The use of pesticides by farmers is increasing day by day, but it is not balanced with the knowledge of farmers about the impact of pesticides. Poor knowledge will affect the behavior or practices of farmers when working (Yuantari et al., 2013). There are still many farming communities that are not aware of the dangers that can be caused by the use of pesticides, they still take it for granted if there is trauma or disease due to the impact of pesticides. The ability of farmers to understand the negative impact of pesticides as a policy direction for the use of pesticides. The unwise use of pesticides can cause various negative impacts, one of which is poisoning

The ability of farmers as helpers needs to carry out decontamination to prevent and protect the environment. Basic decontamination by removing the victim's clothes, removing the victim's jewelry and equipment, keeping dangerous items away from the victim. Irrigation fluid in the form of normal water for hazardous materials that are easily soluble in water. Basic decontamination measures a rescuer's effort to protect the environment and the rescuer's self and then continues to provide a series of medical assistance. The series of medical assistance allows the rescuer to be exposed to the

environment so that the rescuer is not expected to become the next victim (Widianto, 2018).

Animal bites are included in the category of poison that enters the body through injection. Animal bites can cause severe pain and can cause swelling, animal bites, although not always life-threatening, can cause severe allergic reactions and can even be fatal (Suyanti, 2018). Someone who is said to have good knowledge if someone knows understands is also able to apply, analyze, and when he has reached the level/stage of synthesis and evaluation (Notoatmodjo, 2007).

The ability of farmers to knowledge about animal bites needs to be improved. Knowledgeable and highly educated farmers automatically know what the initial treatment for venomous animal bites is like, don't panic, wash the bite wound, wrap it with a cloth, immediately come to the local health service. In this study, education has a relationship with the initial handling of animal bites because people who have higher education automatically have high knowledge, while people who have low education automatically have quite low knowledge except that knowledge is obtained through mass media, health education, and others. other. So that highly educated people will know how to treat animal bites that are not life-threatening and prevent the spread of venom from these animal bites (Suryati, Id, et al. 2018).

The level of risk control according to (Puspitasari, 2010) and (Murdiyono, 2016) that is appropriate to increase the ability of farmers using elimination can be defined as an effort to eliminate hazards. Involves more in-depth thinking about how to create a worksite that modifies equipment, performs a combination of activities, changes procedures, and reduces the frequency of performing hazardous activities.

Emergency

Length of work is the length of time a farmer works every day in every hour and several days a week in units of days, so the longer the farmer's working hours in a day, the more pesticides will be received by the farmer's body

and will accumulate in a few working days. for a week, it will accumulate over a longer period time (Ferning, 2004). WHO requires the length of work in a workplace that is at risk of pesticide poisoning, which is 5 hours per day or 30 hours per week.

This study is in line with Kaligis (2015) which states that the habit of spraying with a frequency of more than 2 times a week has a risk of 4.727 and 2.3 times compared to a frequency of fewer than 2 times a week. The results of Mariani's research (2005) show that a minimum of one week's rest can increase blood cholinesterase activity in spraying farmers.

In addition, several studies have shown that pesticide exposure hurting thyroid function. Thus, farmers in Lumajang district have vulnerabilities and threats to the dangers of contact with pesticides, especially high insecticides, therefore farmers should be given the ability to build a mindset related to direct or indirect impacts due to exposure to chemicals in the form of these pesticides. This is because farmers have always considered the side effects of contact with pesticides to be limited to those that are usually felt directly, such as itching on the skin, hot and watery eyes, not thinking about the long-term impact.

Based on the results of the study, it can be seen that farmers are at high risk of developing integrated emergencies based on agricultural nursing because they are susceptible to certain chronic diseases (27%), eating 1-3 times per day (75%), drinking for 1 day < 1 liter (32%), body weight < 40 kg (21%) and several other farmers were also threatened with acute illness due to being exposed to sharp tools (81%), being bitten by an animal (43%), exposed to agricultural machine tools (36%), had fallen (36%), and pierced by sharp objects (28%). According to (Baksh, et al., 2015) (Rosanti & Andarini, 2017), informal activities have the same elements as formal activities, namely, there is an interacting workforce, tools, and work environment. If the interaction is not in accordance with the standards, it can result in Occupational Diseases and Occupational Accidents. The use of machines and heavy

equipment such as tractors, harvesters, planting tools, and so on in the agricultural sector is a source of danger that can result in injuries and fatal work accidents. In addition, the use of agricultural tools and machines designed to carry out several jobs at once requires operators to have a high level of skill and concentration which can lead to fatigue which can lead to accidents (Haerani, 2010). Accidents that often occur are getting sick with sickles and hoes, farmers usually just treat them with makeshift drugs and equipment but if the incident is severe, farmers immediately come to the nearest public health care (Rosanti & Andarini, 2017)

CONCLUSION

Farmers in Lumajang Regency almost entirely do not have employment and health insurance. This causes the risk of health threats and work accidents to be higher for farmers. The use of machines and heavy equipment such as tractors, permanent machines, planting tools, and so on in the agricultural sector is a source of danger that can result in injury and fatal work accidents. In addition, the use of pesticides can cause poisoning or serious illness, as well as animal and plant dust which can cause allergies and respiratory diseases. The level of knowledge of farmers who are less precise in using pesticides should be improved.

Thus, farmers in Lumajang district have vulnerabilities and threats to the dangers of contact with pesticides, especially high insecticides, therefore farmers should be given the ability to build a mindset related to direct or indirect impacts due to exposure to chemicals in the form of these pesticides. This is because farmers have always considered the side effects of contact with pesticides to be limited to those that are usually felt directly, such as itching on the skin, hot and watery eyes, not thinking about the long-term impact. Farmers are at high risk of developing integrated emergencies based on agricultural nursing because they are susceptible to certain chronic diseases (27%), eating 1-3 times a day (75%), drinking for 1 day < 1 liter (32%), weight body weight < 40 kg

(21%) and several other farmers were also threatened with acute illness due to being hit by sharp tools (81%), being bitten by an animal (43%), being hit by an animal weapon (36%), having fallen (36%), and being stabbed by an object. sharp (28%). The risk of an integrated emergency based on agricultural nursing in the Lumajang Regency is still high.

SUGGESTIONS

Reducing the emergency risk of integrated farmers based on agricultural nursing is urgently needed by increasing the capacity of farmers and reducing threats and vulnerabilities in agricultural areas. Besides, government support through policies that favor the safety, health, and welfare of farmers needs to be improved.

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DECLARATION OF CONFLICTING INTEREST

There is no potential conflict of interest found in this research.

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AUTHOR CONTRIBUTION

Suhari Suhari: Prepare research proposal, lead the research, conduct research permit, promote research plans, cross-sector approach, collecting research data, responsible of research results, presentation of results report, and compile the article.

Mashuri Mashuri: Conduct preliminary studies, assist in preparing proposals, collecting data, perform data processing, help compile research result reports, assist to prepare of published article.

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