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Relationship between Behavior and Work Accident in Rice Farmers Using Pesticides in Oebobo Village, Batu Putih District

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Abstract

Work accident cases are a health problem in many parts of the world, including in the East Nusa Tenggara region. This study aims to analyze the relationship between behavior and work accidents among rice farmers who use pesticides in Oebobo village, Batu Putih district. This type of research uses an analytic survey with a cross-sectional design. The study's results were analyzed statistically using the chi-square test showing the relationship between knowledge and work accidents obtained a score (p-value) of 0.023, and the relationship between attitudes and work accidents got a score (p-value) of 0.044. The relationship between action and work accidents, a score (p-value) of 0.030 was obtained so that statistically, there was a relationship between behavior and work accidents on pesticide-using rice in Oebobo Village, Batu Putih District. This research contributes to knowing the causes of work accidents among farmers who use pesticides, namely lack of knowledge, attitudes that do not want to use personal protective equipment, and unsafe actions at work. The use of PPE by rice farmers is still deficient. The majority of farmers generally still feel indifferent about this. The findings obtained in this study indicate that knowledge, attitudes, and actions are related to work accidents among rice farmers who use pesticides in Oebobo Village, Batu Putih District. In the future, there needs to be more intense outreach by either village assistants or other related parties in order to increase the knowledge and understanding of the farmers in the village, as well as prevent work accidents in the future.

Keywords *Behavior; work accident; farmer; pesticide*

INTRODUCTION

Many of the benefits provided by pesticides to farmers have negative effects on their users. The content of chemical substances in pesticides can be bad for the health of farmers, while the health problem that can be experienced is poisoning. Poisoning is one of the negative effects that can arise from the unwise use of pesticides, both chronic and acute poisoning. Acute poisoning usually causes symptoms of dizziness, nausea, headaches, and even vomiting symptoms. Chronic poisoning is difficult to detect, but for a long time, it can cause health problems. Several health problems associated with the use of pesticides are liver, kidney, respiratory system disorders, cancer, miscarriage, birth defects, and nerves. The World Health Organization (WHO) as a health organization in the world states that poisoning caused by the use of pesticides can kill pesticide impact testing carried out by the Bali Hiperkes Center in collaboration with the Food Crops Agriculture Service in eight districts out of 551 people examined 20.32% mild poisoning, 4.25% moderate poisoning. Data for 2004, with a sample of 394 from 9 districts, 19 people were mildly poisoned, and three people were moderately poisoned. In 2005, out of the 207 samples examined, five people were mildly poisoned, and two people were moderately poisoned J (Hayati et al., 2018).

Based on the results of poisoning data in Indonesia, according to the National Poisoning Information Center (SIKer), providing data, there were 771 cases of poisoning due to pesticides in 2016. The cause of poisoning due to pesticides is the behavior of farmers who pay less attention to the use of personal protective equipment (PPE) in spraying pesticides. Personal protective equipment for farmers includes masks, glasses, hats, special clothes, special shoes, and gloves. Work accidents among farmers occur due to farmers' lack of knowledge and attitudes and actions of farmers who are indifferent to self-protection, causing poisonings such as nausea, dizziness, skin irritation, and others. The fact is that complying with the use of PPE on farmers can reduce work-related accidents and diseases.

Occupational accidents are events and incidents that are not initially expected, which can cause fatalities and human losses. Occupational accidents are caused by physical and human factors. Physical factors such as unsafe working conditions, slippery floors, insufficient lighting, glare, etc. Human factors such as worker behavior that does not meet safety due to carelessness, drowsiness, and fatigue (Marchamah & KH, 2017).

Cases of work accidents in Indonesia are still relatively high. Referring to data from the Employment Social Security Administration Agency (BPJS), in 2019, there were 114,000 work accident cases. Meanwhile, in 2020 this figure increased in the range from January to October 2020, BPJS Ketenagakerjaan recorded 177,000 cases of work accidents (Widianto, 2021).

Occupational accidents are still a public health issue in East Nusa Tenggara Province. BPJS Ketenagakerjaan for the Province of East Nusa Tenggara records said that in 2017 work accident cases had increased four times compared to 2016. Work accidents that occurred in 2016 were 19 cases, while in 2017, it increased to 79 cases. In 2018 the number of work

accidents in NTT decreased to 71 cases. The cases recorded at BPJS Ketenagakerjaan do not cover all the incidents that occurred. This is because the iceberg phenomenon still occurs in work accident cases (Young et al., 2020).

Batu Putih District is one of the 32 sub-districts in South Central Timor District. According to the natural conditions of Batu Putih Subdistrict, it is located in a mountainous area, so of course, there are rivers and also some surface water which makes it easier to carry out agricultural activities, so most of the residents of Batu Putih Subdistrict make a living in the agricultural sector. Oebobo Village is one of the villages in Batu Putih District with a population of 361 people who work as rice farmers. Oebobo Village has a land area where the largest land is rice paddy land. Therefore Oebobo Village is one of the rice-producing villages because most of the population of Oebobo Village work as rice farmers.

LITERATURE REVIEW

Behavior

Behavior according to the World Health Organization (WHO), there are four main reasons for a person's behavior, including thoughts and feelings, there are role models that are highly trusted, there are resources to support the formation of individual and community behavior, there is a socio-cultural environment in society that influences the formation of behavior in a person.

Benjamin Bloom, quoted in Notoadmojo Soekidjo (2016), states that behavior is divided into three domains, namely cognitive (cognitive), affective (affective), and psychomotor (psychomotor). In its development, this theory was modified for the benefit of practical education. Three levels of behavior domains were developed, namely knowledge, attitudes, and actions; Knowledge is the result of someone's sensing or the result of knowing someone about an object through the senses they have, such as the eyes, nose, or ears. In general, knowledge is divided into six levels, namely: knowing, understanding, application, analysis, synthesis, and evaluation; attitude is a closed human response to an object or stimulus, which involves opinion factors and also the emotions involved, such as being happy or not, agreeing or disagreeing. As with knowledge, attitudes are divided into several levels as follows: receiving, responding, appreciating, and responsible; actions are divided into three levels according to their quality, namely: perception, guided practice, mechanistic practice, and adoption. According to Notoadmojo Soekidjo (2016), attitudes do not appear automatically manifest in action (overt behavior). In order for the attitude to become real, it needs supporting factors or enabling conditions, including facilities.

Work Accident

A work accident is an unwanted event or event that is detrimental to humans, damages property, or causes losses to processes. Occupational accidents can also be defined as

unwanted and unexpected events that can cause human and/or property casualties (Pisceliya & Mindayani, 2018).

Work accidents can be caused by several factors, including ; the direct cause is a cause that can be seen and felt directly. The direct causes are divided into two groups, namely unsafe acts are a form of action that is not in accordance with safety at work and is dangerous because this is closely related to the way of work, and unsafe conditions are all conditions that can have a risk of causing danger to workers. The basic causes are divided into 2, namely internal conditions, including human or personal factors, lack of knowledge skills, and insufficient motivation, and environmental factors, including physical, biological, chemical, and ergonomic factors.

The types of work accidents that occur include: bumping, hitting, falling from a height, slipping, exposure, suction or absorption, and being touched by an electric current. There are four main controls for preventing work accidents, namely elimination, substitution, engineering control, and administrative control.

Pesticide

Pesticides literally mean pest killers (Djojosumarto, 2008:21) in (Rehulina, 2021). Meanwhile, according to The United States Environmental Pesticide Control Act (Rehulina, 2021), pesticides are all substances or a mixture of substances specifically used to control, prevent, or fend off insects, rodents, nematodes, weeds, viruses, bacteria, micro-organisms that considered pests except viruses, bacteria or other micro-organisms found in humans and animals or all substances or mixtures of substances used to regulate plant growth or plant desiccant.

Pesticides were created to prevent certain crop protection problems, for example, pests (insects, mites, mammals, birds, and slugs), diseases (viruses, bacteria, fungi), weeds, or weeds. Disturbances caused by plant-disturbing organisms (OPT) can be controlled using pesticides. The types of pesticides are insecticides, acaricides, molluscicides, rodenticides, fungicides, bactericides, nematicides, and herbicides (Djojosumarto, 2020).

Success in pesticide application is determined by the right application technique. In agriculture, pesticides are applied in several ways: sowing, spraying, smoking, blowing, feeding, fuming, seed treatment, dipping, injection, and watering (Nenotek & Harini, 2018). According to Djojosumarto (2020), several types of pesticide application tools are used to control pests and diseases, namely sprayers (manual sprayers, machine-powered sprayers, and motorized sprayers), blowers, and rat exhales.

Personal Protective Equipment (PPE)

According to Yulianto (2020), Personal Protective Equipment (PPE) is a tool that has the ability to protect workers while doing work that functions to protect the worker's body from danger

while working. Personal protective equipment or personal protective equipment is equipment that must be used to protect and maintain the safety of workers when working, which has potential hazards or work accidents.

According to Tarwaka in Yulianto (2020), the criteria for personal protective equipment (PPE) that are used and effective in their use and maintenance are: PPE must be able to provide effective protection for workers against potential hazards encountered in the workplace PPE must be light in weight so that when used, workers can feel safe, do not cause disturbance to PPE users and easy to use which mean does not interfere with the user's body, be it a hearing, vision, or other health problems when wearing PPE.

Personal protective equipment that can be used when spraying pesticides based on regulations on PPE includes head protection equipment, respiratory protection equipment, eye protection equipment, hand protection equipment, leg protection equipment, and protective clothing (Karina, 2019).

The purpose of using PPE when carrying out work is to protect the worker's body if engineering or engineering and administration cannot be carried out, increase work productivity and effectiveness and make the work environment safe. In comparison, the benefits of using PPE are to protect the whole body or part of the body against the possibility of a work accident while doing a job and reduce the risk of illness due to a work accident.

Careful selection of good PPE is one of the most important requirements. The use of PPE that is not good will cause accidents for workers if they are not protected if there is exposure in the workplace. The following is how to choose good PPE, namely PPE must provide proper protection against a hazard faced by workers, the weight of PPE must be light, and the type of PPE does not cause excessive discomfort, can be used flexibly, not cause additional danger if misused, PPE must meet standards and be durable and not restrict the wearer's movements.

METHOD

This study used an analytic survey method with a cross-sectional design. In terms of primary data, the researcher used a questionnaire instrument on 78 rice farmers, with the main requirement being in the Oebobo Village area of Batu Putih District, and obtained files related to the profile of Oebobo Village. The data in this study were tabulated first, then analyzed using the chi-square test. This study focuses on the relationship between behavior and work accidents among rice farmers spraying pesticides.

RESULTS AND DISCUSSION

The Relationship between Knowledge and Work Accidents in Rice Farmers in Oebobo Village, Batu Putih District

The results of the analysis of the relationship between knowledge and work accidents for rice farmers in Oebobo Village, Batu Putih District can be seen in table 1.

Tabel 1. Relationship between Knowledge and Work Accidents

Knowledge	Work Accident				Amount		*p* value
	Got an Accident (n)	%	No Accident (n)	%	N	%	
Not Enough	36	46,2	1	1,3	37	47,4	0,023
Enough	24	30,8	2	2,6	26	33,3	
Good	11	14,1	4	5,1	15	19,2	
Total	**71**	**100**	**7**	**100**	**78**	**100**	

Based on table 1, the results of the chi-square test on the knowledge variable were found to have a relationship with work accidents in Oebobo Village, with a p-value of 0.023 (P<0.05). Not enough knowledge of as much as 47.4%, with 46.2% having a work accident and 1.3% not having a work accident. Respondents with sufficient knowledge were 33.3%, with 30.8% experiencing work accidents and 2.6% not having work accidents. Respondents with good knowledge were 19.2%, with a category that experienced work accidents as much as 14.1% and 5.1% did not experience work accidents. The data shows that there is a relationship between knowledge of the occurrence of work accidents among rice farmers in Oebobo Village, Batu Putih District.

Farmers' knowledge of using PPE plays an important role in minimizing the occurrence of work accidents in workers at work because the better the knowledge of respondents, the level of awareness of respondents to use good PPE will be higher. Conversely, if farmers' knowledge is low, their awareness of using PPE will also be less complete. Complete personal protective equipment such as masks, hats, protective clothing, boots, and gloves. The poor knowledge possessed by farmers is also due to the age factor, where age is very closely related to one's grasping power and also the way one thinks. The older a person is, his comprehension and mindset also develop, so that the knowledge obtained is getting better (Sitorus, 2017).

The results of this study are in line with research conducted by Gustina et al. (2019), which states that there is a significant relationship between knowledge and the incidence of health problems among farmers who use pesticides in Simpang Pino Village, Ulu Manna District in 2018, with a p-value of 0.008. This study has similarities, namely that farmers still lack knowledge and lack of information about the use of PPE, which is useful in preventing the dangers of pesticides, and also the availability of PPE, which has not become a priority for farmers.

Relationship between Attitudes and Work Accidents in Rice Farmers in Oebobo Village, Batu Putih District

The results of the analysis of the relationship between attitudes and work accidents for rice farmers in Oebobo Village, Batu Putih District, can be seen in table 2.

Tabel 2. Relationship between Attitudes and Work Accidents

Attitudes	Work Accident				Amount		*p* value
	Got an Accident (n)	%	No Accident (n)	%	N	%	
Positive	27	34,6	0	0,0	27	34,6	0,044
Negative	44	56,4	7	9,0	51	65,4	
Total	**71**	**100**	**7**	**100**	**78**	**100**	

Based on table 2, the results of the chi-square test for the attitude variable were found to have a relationship with work accidents in Oebobo Village, with a p-value of 0.044 (P<0.05). A positive attitude is 34.6%, with 34.6% having work accidents and 0.0% not having work accidents. Respondents with a negative attitude were 65.4%, with a category of 56.4% having a work accident and 9.0% not having a work accident. This shows that there is a relationship between attitudes and work accidents among rice farmers in Oebobo Village, Batu Putih District.

A good attitude is to reach the stage of accepting, responding, appreciating, and even being willing to take responsibility for actions or using personal protective equipment on farmers when working. Attitude is also said to be a feeling of support (positive) or a feeling of not support (negative) for a certain object (Notoadmodjo, 2021). In the research conducted, it was found that farmers who have worked for a long time believe they are immune to the dangers of various types of hazardous chemicals and the risk of work accidents, so they do not need to use personal protective equipment, do not use head protection hats, gloves that are impermeable to water/ pesticides and protective masks from pesticide inhalation. From this explanation, it can be concluded that the attitude towards workers' conditions is important because there are more problems caused by the carelessness of workers compared to machine work. Attitudes can be influenced by several factors, namely personal experience, the influence of people around who are considered important, and the influence of the surrounding culture. The embodiment of attitudes cannot be seen directly but can be interpreted in advance from closed behavior so that attitudes generally involve feelings, thoughts, and so on. Therefore, the more positive the attitude of workers, the better their behavior toward using PPE while working. In the category of negative attitudes, the main cause is the lack of knowledge of farmers regarding the use of PPE when spraying pesticides, and the correct information is rarely obtained by farmers from local agricultural extension workers. This research is in line with research conducted by Hasanah (2022), which states that there is

a relationship between attitudes and behavior in using PPE when spraying pesticides at the UKK Post in the Work Area of the Paal Merah II Health Center in 2022, with a p-value of 0.000. This research is in line with research conducted by Lestari (2020), which states that there is a relationship between attitude and the incidence of work accidents among farmers in Sukaindah Village, with a p-value of 0.019.

Relationship between Action and Work Accidents in Rice Farmers in Oebobo Village, Batu Putih District

The results of the analysis of the relationship between action and work accidents for rice farmers in Oebobo Village, Batu Putih District, can be seen in table 3.

Tabel 3. Relationship between Action and Work Accident

Action	Work Accident				Amount		*p* value
	Got an Accident (n)	%	No Accident (n)	%	N	%	
Good	4	5,1	2	2,6	6	7,7	0,030
Bad	67	85,9	5	6,4	72	92,3	
Total	**71**	**100**	**7**	**100**	**78**	**100**	

Based on table 3, the results of the chi-square test for the action variable were found to have a relationship with work accidents in Oebobo Village, with a p-value of 0.030 (P <0.05). Good action, as much as 7.7%, with 5.1% having a work accident and 2.6% not having a work accident. Respondents with bad actions were 92.3%, with a category of 85.9% having a work accident and 6.4% not having a work accident. This shows that there is a relationship between an action and the occurrence of work accidents among rice farmers in Oebobo Village, Batu Putih District.

Based on what was found in the field, some farmers did not use complete PPE, and this was because farmers assumed that using PPE greatly disrupted the movement of farmers at work. Farmers also think that the completeness of personal protective equipment must be supported by the economy because farmers do not have the cost to buy quality personal protective equipment. This means that attitudes do not automatically materialize in action. In order for an attitude to become real, it needs supporting factors or enabling conditions, such as a person's perception begins to form in his thought process regarding the action he wants to take. This study is in line with study conducted by Akbar et al. (2022) states that there is a relationship between actions and farmer behavior which can cause work accidents for farmers in Kotamobagu City in 2022, with a p-value of 0.001.

CONCLUSION

The use of PPE by rice farmers is still very low, and this is motivated by a lack of understanding about the importance of PPE at work. The majority of farmers generally still feel indifferent about this. The findings obtained in this study indicate that knowledge, attitudes, and actions are related to work accidents among rice farmers who use pesticides in Oebobo Village, Batu Putih District. In the future, there needs to be more intense outreach by either village assistants or other related parties in order to increase the knowledge and understanding of the farmers in the village, as well as prevent work accidents in the future.

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