

POISONING DUE TO PESTICIDE SPRAYING VIEWED FROM PERSONAL HYGIENE AND LONG EXPOSURE TO ONION FARMERS IN THE SUMBERJO VILLAGE

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**POISONING DUE TO PESTICIDE SPRAYING VIEWED FROM PERSONAL HYGIENE
AND LONG EXPOSURE TO ONION FARMERS IN THE SUMBERJO VILLAGE,
GONDANG DISTRICT, NGANJUK REGENCY**

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ABSTRACT

Pesticide poisoning is the influx of chemicals into the human body through direct contact, inhalation, ingestion and absorption, causing negative effects to the body. Poisoning can occur due to the influx of excessive pesticides or for ignoring safety procedures, health and safety and working equipment are inadequate. The purpose of this study to determine the effect of personal hygiene and long exposure to poisoning due to pesticide spraying on onion farmers in the village of Sumberjo, the District of Gondang, the Regency of Nganjuk

The design study is observational with cross sectional approach. The population in the study was all members of farmers 150 farmers with 109 respondents sample simple random sampling technique. The data collection is using the questionnaire.

The results showed most of the onion farmers have personal hygiene enough categories by 47% (51 respondents), farmers spraying pesticides with a long exposure of more than 4 hours / day by 56% (61 respondents), and the farmers who suffered the poisoning was by 42 % (46 respondents). The results of the analysis of ordinal regression test no influence personal hygiene and long exposure to poisoning due to pesticide spraying by 14.3% to 0.002 p value <0.05 then H0 rejected. Pay attention to personal hygiene including the use of personal protective equipment (PPE) as well as the spraying of pesticides full accordance with the rules and procedures appropriate security is strongly recommended to farmers to avoid the danger of pesticide poisoning that can improve the health of onion farmers.

Keywords: *Onion Farmer, pesticide poisoning, Personal Hygiene, Long Exposure*

INTRODUCTION

The use of pesticides is increasingly high, especially in developing countries in Asia, Africa, Central America and Latin America. Developing countries are only using 25% of total pesticide use around the world (world-wide), but in the case of deaths caused by pesticides, 99% experienced by the countries in the region. According to WHO (World Health Organization) this is due to the low educational level of farmers in the country that use tends to be unsafe manner or not in accordance with existing rules.

According to estimates by the World Health Organization (WHO) and Environment Program of the United Nations (UNEP) 1.5 million cases of pesticide poisoning in agricultural workers. Most cases of poisoning in developing countries, 20,000 of them fatal. Farmers as a pesticide users have the highest risk of exposure to pesticides resulting in disability and death, the results showed high incidence of pesticide poisoning caused by between 20-50% (MOH, 2005).

Test results on blood cholinesterase farmers in Nganjuk (2001) showed that out of 22 people onion farmers who examined his blood cholinesterase activity, 12 (37.5%) mild poisoning, and 10 (31.25%) of severe poisoning (Alkadri, 2009).

In some cases direct pesticide poisoning, according Djojsumarto (2005) in Nuryana (2008) states that the work that most often lead contamination is mainly spraying when applying pesticides.

Spraying pesticides that do not meet the rules will lead to many effects, including impacts to human health is the incidence of poisoning to the individual farmers (Djafaruddin, 2006) in Nuryana (2008). In this case the farmers in spraying pests must use personal protective equipment, conduct spraying technique correct, and maintain personal hygiene to avoid contamination of pesticides, but farmers users tend to underestimate the dangers of pesticides so that they do not comply with the requirements for safety and health in the use of pesticides including the use of personal protective equipment and spraying application techniques. Pesticide poisoning is often not felt and due to unpredictable encouraging them to apply pesticides in their way because it does not feel disturbed (Djojsumarto, 2005) in Nuryana (2008).

Based on preliminary studies that researchers do the onion farmers in the village of Sumberjo active spraying pesticides on average had experienced symptoms of poisoning such as headaches, like vomiting, sweating, weakness, even in 2015 has never been even one (1) case of onion farmers red suffered pesticide poisoning to experience vomiting and fainting were then taken to the District General Hospital Nganjuk. Based on observations and interviews researchers to farmers in the village of Sumberjo seen from the duration of exposure to pesticides the farmers on average worked from seven o'clock to twelve o'clock, if the pest attack increases the farmers also increase the frequency of spraying, in a week sometimes more than three times spraying, and the average farmer has more than one rice field, so that every

day they have to move from one to the rice paddy others to do the spraying, that's what every day brings farmers exposed to pesticides longer. Besides personal hygiene onion farmers are still poor, many farmers who wash hands without using soap on the flow got former stream they passed when spraying, and at meal times they do not use a spoon and still wearing work clothes used when spraying, farmers also often bathe in the diesel wells near the fields without using soap and wash work clothes without using detergent. It often triggers farmers suffered poisoning from contaminated by exposure to pesticides.

From the preliminary study conducted on 24 April 2016 Sumberjo village there are 5 farmer groups with 30 members in each group brackish. Onion farmers in the village Sumberjo use an average class of organophosphate pesticides to eradicate the pest (plant pests) shallots and average farmers to spray 10-15 times per season (2 months) depending on the pest (plant pests) that attack the onion crop in one year, there are 3 red onion season. Spraying activities throughout the year, so that the level of exposure of farmers to pesticides is very high, it further illustrates the risk level of farmers against pesticide poisoning. Basic information about pesticide poisoning, personal hygiene, and the factors that influence pesticide poisoning in specific onion farmers in the village of Sumberjo is yet available. Based on the above background, the researcher interested to study about personal hygiene and long exposure to pesticides on onion farmers against poisoning due to pesticide spraying under the title: "Poisoning Due Pesticide

Spraying Seen From Personal Hygiene and Long Exposure At Farmers Onion In the village Sumberjo the District Gondang Nganjuk".

MATERIALS AND METHODS

In this study, it is using observational study design. This type of research used in this research is analytic survey research with cross sectional approach. Total sample is 109 respondents who are active members of farmers spraying pesticides by simple random sampling method in the District Gondang Village Sumberjo Nganjuk.

The primary data collection is using the questionnaire. The questionnaire was divided into three groups of questions or statements include; The first question of the general characteristics of respondents including pesticide spraying long exposure; Both statements regarding personal hygiene and; The third statement about the poisoning due to pesticide spraying. Furthermore, the recapitulation of the questionnaire was analyzed using statistical test Ordinal Regression.

RESULTS

Characteristics of Respondents

Table 1 Characteristic of Respondents by Age, Old Work, Education, And Pesticide Active Ingredients Used

Characteristics	N	%
Age		
20-25	21	19
26-31	16	15
32-37	15	14

38-43	18	16
44-49	18	16
50-55	16	15
56-61	5	5
Long Working		
2-7	19	17
8-13	21	19
14-19	15	14
20-25	15	14
26-31	16	15
32-37	9	8
38-43	11	10
44-49	3	3
Education		
Never Schools	12	11
Primary school	27	25
Junior high school	37	34
Senior High School	27	25
College/University	6	6
Pesticide Active Ingredients	23	21
Tetraethylpyrophosphate	11	10
Klorfenafir	10	9
Abamectin	30	28
dichlorvos	16	15
Acetate	11	10
Triazofos	11	10
profenofos	8	7

Source: Data Analysis Results

Variable characteristics

Table 2 Characteristics Variable Based on Personal Hygiene, Long Exposure, and Toxicity Due Pesticide Spraying

Characteristics	N	%
Personal Hygiene		
Good	20	18
Enough	51	47
Less	38	35
Long exposure		
≥5 hours / day	48	44
<5 hours / day	61	56
Poisoned		

Mild poisoning	44	40
poisoning Medium	46	42
poisoning weight	19	17

Source: Data Analysis Results

TEST RESULTS STATISTICS

Table 3 Statistical test results Model

Fitting Information:

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	51.327			
Final	36.764	14.564	3	0.002

Statistical test results using ordinal regression test to 109 respondents with $\alpha = 0.05$ was obtained p value of 0.002 ($0.002 < 0.05$) reject H_0 This means that there is the influence of personal hygiene and long exposure to poisoning due to pesticide spraying on onion farmers in Sumberjo village Gondang district Nganjuk.

Table 4 Pseudo R-Square:

Cox and Snell	0.125
Nagelkerke	0.143
McFadden	0.065

Statistical test results in this study were obtained Pseudo R-square value at Nagelkerke amounted to 0.143 this means that personal hygiene and poisoning due to long exposure affects 14.3% of pesticide spraying and spraying pesticide poisoning is influenced by other factors amounted to 85.7%.

DISCUSSION

Personal Hygiene

Of the 109 respondents acquired mostly onion farmers have enough personal hygiene by category by 47% (51 respondents).

Based on the results of cross tabulations age of respondents with personal hygiene known to most farmers aged 20-25 years old have enough personal hygiene category of 10.1% (11 respondents). Long worked with personal hygiene known to most farmers to work 8-13 years old have enough personal hygiene category by 8.3% (9 respondents). Education with personal hygiene is known to most farmers with personal hygiene education SMP have enough categories of 15.6% (17 respondents). The active ingredients of pesticides with personal hygiene known to most farmers use pesticide active ingredient dichlorvos have enough personal hygiene category was 13.8% (15 respondents).

Personal hygiene onion farmers surveyed in the village Sumberjo most still have enough categories. This is because of the attitude of farmers in the use of personal protective equipment (PPE) many are incomplete because of discomfort when wearing personal protective equipment (PPE) is complete. Farmers just wear a hat and a long shirt to protect from the sun. Farmers believe that the situation as it is common. Masks they use are usually in the form of masks "kerojong" threadbare or torn used instead of a hat and a mask, there is also a long-sleeved shirt tied around his head and covered his face instead of a mask. This greatly affects the exposure to pesticides can

enter through the respiratory tract (mouth and nose) or through the skin (inhalation). Rarely do the farmers wear gloves and goggles.

In addition APD onion farmers in the village of Sumberjo also pay less attention to personal hygiene in the moments before spraying; at the time of spraying; and after spraying. Farmers, who make a habit of pesticide formulations without the use of PPE, are smoking at the time of spraying, pausing to drink and eat and then continued spraying. At mealtime; drink; the smoking or do not bathe or wash your hands first with water and soap. If the fields far from the wells used to wash hands diesel farmers in rice paddies former street gutter flow spraying and rinsed with potable water carried. So the farmers at the time of eating, drinking, and smoking are still in the condition of the body is not clean and not replace work clothes.

Long exposure

Of the 109 respondents mostly do long exposure to the pesticide spraying more than equal to 5 hours / day by 56% (61 respondents).

Based on cross-tabulations of age with long exposure to the pesticide spraying is known mostly 20-25-year-old farmer spraying pesticide with a long exposure is less than 5 hours / day by 11.9% (13 respondents). Long worked with long exposure to the pesticide spraying known to most farmers to work 8-13 years old spraying a pesticide with long exposures more than equal to 5 hours / day by 11.9% (13 respondents). Education with

a long exposure to the pesticide spraying known to most farmers spraying pesticides junior high school education with a long exposure of more than equal to 5 hours / day amounted to 23.9% (26 respondents). The active ingredient of pesticides used by farmers with long exposure to the pesticide spraying known to most farmers use pesticide active ingredient dichlorvos spraying pesticides by long exposure to more than equal to 5 hours / day 16.5% (18 respondents).

Based on research in the field most of the farmers in the village Sumberjo spraying more than equal to 5 hours / day, this is because the land owned by farmers an average of nearly 1 Ha, so farmers work the farming land owned start spraying, watering morning and evening, cleaning grass done alone. Therefore they began their work from early morning until noon and then resumed again in the afternoon. Their activities are mostly spent in the fields to care for their onion planting. If pests increased by almost all farmers spraying pesticides on a daily basis, it is not uncommon that spraying from morning till noon without regard to time and long exposure to the pesticide spraying. In fact, according to the theory put forward Novizan (2002) suggested in general a good time to spray the pesticide is in the morning at 7:00 to 10:00 and afternoon from 15:00 to 18:00.

Due Spraying Pesticide Poisoning

Of the 109 respondents found most of the onion farmers in the village of Sumberjo poisoning was by 42% (46 respondents).

Based on cross-tabulations Age poisoning known to most farmers aged 20-25 years experienced mild poisoning by 8.3% (9 respondents) and poisoning

was by 8.3% (9 respondents). Long worked with poisoning known to most farmers to work 8-13 years old suffered mild poisoning of 10.1% (11 respondents). Education with poisoning is known to most farmers with junior educational experience mild poisoning at 18.3% (20 respondents). The active ingredients of pesticide poisoning are known to most farmers use pesticide active ingredient dichlorvos poisoning was 12.8% (14 respondents).

Based on the results of research in the field is a lot of farmers who suffered moderate and severe poisoning. Farmers often complain of headaches, like vomiting, watery eyes, blurred vision, sweating, pain in muscles and sudden tremors after spraying pesticides. These complaints arise because farmers do not pay attention to the procedures spraying appropriate, such as: personal hygiene including the use of PPE is complete, and the spraying technique that is true, it is not uncommon farmer spraying is not in accordance with the direction of the wind, blowing nozzle clogged with the mouth directly. In addition, farmers often bring their own food and drinks from home. On the sidelines of spraying or spraying is finished they normally eat "lunch" they had brought from home. This can affect the health status of farmers because of cleanliness and personal hygiene is lacking, they only wash their hands in the rice fields with makeshift water is not clean and do not use soap. Farmers always underestimate these things when could endanger the safety and health of farmers.

Effect of Personal Hygiene and Long Exposure Due Pesticide Spraying Against Poisoning

Based on the results of the ordinal regression analysis results obtained 14.3% of personal hygiene and long exposures affect poisoning due to pesticide spraying on onion farmers with p value 0.002 <0.05. Under these conditions, H₀ is rejected and H₁ accepted which means that there is the influence of personal hygiene and long exposure to poisoning due to pesticide spraying on onion farmers.

Results were also consistent with research Aulia (2016), in which the statistical test using the Fisher Exact Test, p value of 0.038 obtained. Then the p value less than 0.05 (0.038 <0.05), which means there is a significant correlation between the level of personal hygiene farmer spraying pesticide poisoning in the Hamlet Banjarrejo Cepogo Kembang Kuning District of Boyolali.

Related to long exposure in line with the results of Yahya (2009) in which the statistical test by using ANOVA, p value = 0.003 ($p < \alpha = 0.05$) so that it can be interpreted that there is a long exposure effect vegetable growers use pesticides to farmers of blood cholinesterase activity, where blood cholinesterase levels signify lower peasant farmers suffered poisoning.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. Most of the onion farmers have enough personal hygiene categories by

47% (51 respondents).

2. Most of the onion farmers spraying pesticides by long exposure to more than equal to 5 hours / day by 56% (61 respondents).

3. Most of the onion farmers being poisoned by 42% (46 respondents).

4. There is the influence of personal hygiene and long exposure to poisoning due to pesticide spraying on onion farmers in the village of Sumberjo the District of Gondang in Nganjuk with p value of 0.002.

Suggestion

1. For Farmers, is expected to improve personal hygiene and how good pesticide spraying applications and according to the rules correctly; more active in seeking information in recognizing pesticide poisoning and how to cope with poisoning due to pesticide spraying; as well as routine medical examination at the health center or Other Health Services.

2. For Academic See more about these findings, it can be used as one of literature in teaching and learning can be applied in practice in the field in order to improve preventive measures the incidence of poisoning due to pesticide spraying and promoting health status of farmers.

3. Health Agencies, expected health workers conduct periodic health checks and provide counseling to farmers about personal hygiene, spraying pesticides, and actions to take in case of pesticide poisoning.

4. Agencies Agriculture, agricultural institutions are expected to provide

oversight in the use of pesticides, provide information pesticide poisoning prevention, help improve safety and health in the form of the provision of a complete PPE, supervision during the spraying season, and look spraying technique performed by farmers directly.

5. Other researchers, it is expected that the results of this study can be used as a reference for further research such as on the cleanliness of the farmhouse, the cleanliness of the water used in pesticides applied in including hand washing and showering after spraying, pesticide storage, compliance in full PPE receipts from when preparing pesticides until such time as pesticide spraying applications, as well as the examination of blood cholinesterase levels in farmers so that the results can be used for comparison with the results of this study, it can then complement theories that can strengthen the research.

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