

Analysis of PPE Usage and OSH Management Behavior at PT Mapoli Raya

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Abstract: PT Mapoli Raya has 65 workers working in the fertilization section consisting of 61 male workers and 4 female workers. Cases of fertilization workers who experienced symptoms of poisoning contained in 2016 as many as 17 workers, in 2017 as many as 23 workers and in 2018 as many as 13 workers. Knowing the relationship between PPE usage behavior and OSH management with symptoms of chemical fertilizer poisoning in fertilizer workers at PT Mapoli Raya. We used mixed method research with analytic survey type. The population of this research was 551 workers. The sample was determined based on a purposive sampling. Sampling was taken as many as 65 fertilization workers and 1 informant. Data collection using questionnaires and documentation. Analysis of research data using chi-square and qualitative tests. Chi-square test results obtained by knowledge (P-value = 0.043 and Rp = 3.220), attitude (P-value = 0.010 and RP = 4.398) and actions (P-value = 0.013 and RP = 4.173). Results of the qualitative research obtained by PT Mapoli Raya were not implemented in occupational safety and health management because the company experienced financial constraints to implement OSHMS. There is a significant relationship between knowledge, attitudes and actions with the symptoms of chemical fertilizer poisoning in fertilizer workers and the implementation of occupational safety and health management in PT Mapoli Raya.

Keywords: Actions, Attitudes, Knowledge, PPE, Symptoms of Poisoning

Introduction

Introduction Estimates from the World Health Organization (WHO) estimate that 1-5 million cases of poisoning occur each year due to chemicals and pesticides in agricultural workers, most of which (80%) occur in developing countries. WHO data shows that the impact caused by pesticide poisoning can be very fatal such as cancer, disability, infertility and disorders. The use of chemicals and pesticides that are excessive and uncontrolled often creates the risk of poisoning, which will cause some losses including pesticide residues that will accumulate in agricultural products, pollution in the agricultural environment (WHO, 2010).

In Indonesia there are also many cases of poisoning, including 40.792.500 cases of poisoning with clinical and physical examination. Although the national survey has not been carried out, nevertheless these data provide an overview and estimate (35%) of spraying in Indonesia has been poisoned, both mild, moderate and severe. The population in Indonesia in 1988 is estimated to be 175 million and (\pm 63%) farmers and the number of farmers \pm 110,200,000 inhabitants. With an estimate of spraying farmers (37.1%), the number of farmers exposed to pesticide is 40,792,500 people. If \pm 35% of farmers who are exposed to pesticides are poisoned, then the number of farmers who are poisoned is around 14.277.375 people (KEMENKES, 2012).

PT. Mopoli Raya is one of the private companies engaged in oil palm plantations and processing. PT. Mopoli Raya was established on December 17.1980. Since its establishment, PT. Mopoli Raya continues to grow and develop. This can be seen from the area of oil palm plantations owned by PT. Mopoli Raya and its subsidiaries are increasingly expanding. The area of oil palm plantations owned by PT. Mopoli Raya and its subsidiaries are spread in 2 (Two) Provinces, namely in the Province of Nanggroe Aceh Darussalam precisely in the districts of East Aceh, West Aceh and South Aceh and in the Province of North Sumatra.

Based on data obtained from PT. Mapoli Raya, West Aceh Regency, there are 551 workers employed, consisting of 531 male workers and 20 female workers. From the data that there are 65 workers working in the fertilization section consisting of 61 male workers and 4 female workers. Fertilizing oil palm is one of the most important processes for maintaining oil palm fruit production. This oil palm tree bears fruit about every two weeks, or in other words the owner of an oil palm plantation will harvest oil palm once every two weeks. However, each period of two weeks is not impossible that the fruit produced is not the same. Sometimes the first two weeks of the harvest are large, but the interval of the second two weeks is somewhat decreased.

Data from PT Mapoli Raya, West Aceh Regency that the case of fertilization workers who experienced symptoms of poisoning in 2016 were 17 workers, in 2017 there were 23 workers and in 2018 there were 13 workers. Fertilizer workers who experience poisoning generally occur in processing and fertilizing oil palm. Signs that workers are poisoned are nausea and vomiting after breathing air with a pungent odor caused by fertilizer. There are still workers who are poisoned during fertilization due to the habit of workers who do not use PPE and do not wash their hands after carrying out fertilizer work.

Initial survey conducted by the author that there were still 10 workers in the fertilization section of PT Mapoli Raya showed that there were 5 workers who had poor knowledge related to the benefits and purpose of using PPE because they thought workers at the time of fertilization were not at risk in that arising from fertilizers. the workforce has had an impact on the emergence of negative attitudes on 3 workers of PT Mapoli Raya because workers have an attitude that is not careful and vigilant during fertilization especially when workers only use PPE when only supervised by the foreman. Regarding the action, there were 2 workers who did not take action in work, such as not using PPE when opening the fertilizer package before applying fertilizer and not maintaining hygiene and washing their hands after giving the fertilizer. The lack of good knowledge, attitude of supervision, causes a lack of use of PPE such as masks, gloves and shoes when laborers begin fertilizing activities.

Methods

This research is a mixed methods research, this study combines analytic survey research with cross sectional research design and then followed by qualitative research. The population of this study was 551 workers at PT Mapoli Raya, West Aceh Regency. In quantitative data the researchers took samples using purposive sampling techniques, as many as 65 workers giving fertilizer and on qualitative data samples were taken as many as 1 (one) main informant at PT Mapoli Raya. Data collection methods in this study using questionnaires, interviews and documentation.

Result

1. Quantitative Analysis

Table 1 Relationship among Knowledge, Attitude and Action of PPE Use and Chemical Fertilizer Poisoning Symptoms in Fertilizer Workers

Variables	Symptoms of Poisoning				Total		P.value	Ratio prevalence (CI 95%)
	There is no		There is		F	%		
	f	%	f	%				
Knowledge								
Good	17	58,6	12	41,4	29	100	0,043	3,220 (1,156-8,996)
Not Good	11	30,6	25	69,4	36	100		
Attitude								
Positive	19	61,3	12	38,7		100	0,010	4,398 (1,539-12,570)
Negative	9	26,5	25	73,5		100		
Action								
There is	17	63,0	10	37,0	27	100	0,013	4,173 (1,461-11,919)
There is no	11	28,9	27	71,1	38	100		

2. Qualitative Analysis

Based on the results of interviews conducted with the main informant as HRD or Resources Department (Human Resources Division) of PT Mapoli Raya, it is related to occupational safety and health management and its relationship with symptoms of fertilizer poisoning in PT Mapoli Raya fertilization workers obtained interview data as follows :

1. OSH Management Planning

- a. Planning for implementing an occupational safety and health management system at PT Mapoli Raya *"There used to be an occupational safety and health management implemented by the company, but two years have been implemented again due to the impact of falling palm prices"*.
- b. The commitment of the company's leadership in implementing the occupational safety and health management system for PT Mapoli Raya's employees *"Actually, the leadership has committed to implement it, but since the company does not have sufficient funds to implement OSHMS, only for personal protective equipment is provided for employees for employee protection"*.
- c. The purpose of implementing an occupational safety and health management system for PT Mapoli Raya's workers *"In the past, the application of OSH was applied to follow the rules set by the central government regarding the existence of OSHMS to establish plantation companies"*.

2. Implementation of OHS Management

- a. The implementation of an occupational safety and health management system for PT Mapoli Raya's workers *"OSHMS has not been implemented again in the last two years, because it is constrained by the cost, especially the price of palm oil in the last two years"*.
- b. Benefits of implementing an occupational safety and health management system for PT Mapoli Raya workers *"If implemented by the company is very beneficial for all"*

- employees, employees with the presence of OSHMS will be able to provide protection to employees quickly, for example if there are employees who have an accident as mentioned namely poisoning to workers, it will immediately be handled directly by the company".*
- c. Protection provided by the company to fertilizer workers in PT. Mapoli Raya *"For the protection of employees, the company has provided BPJS cards and provided personal protective equipment such as head protectors, masks and shoes to protect employees from accidents".*
3. OHS Management Oversight
 - a. Supervision of the implementation of the occupational safety and health management system of PT Mapoli Raya *"No longer being supervised, especially by the government, because the company is no longer running OSHMS, especially in these two years due to the financial crisis experienced by the company".*
 - b. The impact of the implementation of occupational safety and health management systems on the occupational safety and health of PT Mapoli Raya *"For the impact of the implementation of OSHMS there is no, because it is not applied, it's just that the impact so far has occurred due to not being implemented OSHMS such as when there are employees who have an accident or illness, then the employees themselves who come directly to the place of treatment such as health centers or hospitals by bringing the BPJS card for labor".*
 4. Evaluation of OHS Management
 - a. Evaluation of the implementation of the occupational safety and health management system of PT Mapoli Raya *"The evaluation in the last two years was no longer carried out by the company, because the company had not implemented OSHMS, only in company meetings that were evaluated relating to the production and financial systems of the company, and employee payroll".*
 - b. The results of the evaluation of the implementation of the occupational safety and health management system of PT Mapoli Raya *"There is no evaluation results in conjunction with the application of OSHMS in PT Mapoli Raya, because indeed in the last two years the company has no longer implemented OSHMS because it is constrained by funding to implement OSHMS".*

Discussion

Researcher's assumption relates to the fact that there are still some fertilization workers who have poor knowledge about the use of PPE so that many of them experience symptoms of chemical fertilizer poisoning because there are still many fertilizers who do not know about the benefits of using personal protective equipment that is useful to protect workers when processing or do fertilization work. In addition, many workers also do not know that chemicals contained in chemical fertilizers can cause exposure to poisoning symptoms that are at risk of developing pain in workers who generally experience symptoms of nausea, dizziness and shortness of breath.

This study conducted by Ridwan (2017) that of the 24 respondents with good knowledge of the incidence of pesticide poisoning as many as 18 respondents (69.2%). 9 respondents with

poor knowledge with the incidence of poisoning were 8 respondents (30.8%). *Chi-square test* results between the knowledge of sprayers with symptoms of pesticide poisoning can be seen that $p\text{-value} = 0.002$ means that there is a relationship of knowledge with symptoms of poisoning in pesticide sprayers in Pematang Cermai Village.

Other studies that are in line are the research conducted by Sularti (2015) that respondents with low knowledge mostly experienced the emergence of signs of poisoning symptoms as many as 24 respondents (83%), while the respondents with moderate knowledge most did not experience the appearance of signs of poisoning symptoms as much as 10 respondents (63%). The results of testing the relationship of the level of knowledge of pesticide hazards seen from the emergence of signs of poisoning obtained $p\text{-value} = 0.002$ means that there is a relationship between the level of knowledge of pesticide hazards seen from the appearance of signs of poisoning in farmer groups in Karanganyar.

Researcher's assumption relates to the fact that there are still some fertilization workers who have negative attitudes about the use of PPE so that many of them experience symptoms of chemical fertilizer poisoning because many workers still work without using personal protective equipment such as masks to avoid inhalation of chemicals and gloves so that when processing chemical fertilizer or when fertilizing. In addition, workers are also less vigilant or cautious in working on the work done, so that workers are easily exposed to symptoms of poisoning such as feeling dizzy, nausea and shortness of breath when after carrying out fertilization work.

This study is in line with research conducted by Utami (2016) that respondents who have a positive attitude related to the use of pesticides are 21 respondents (56.8%). While respondents who had negative attitudes related to the use of pesticides were 16 respondents (43.2%). The results of statistical analysis using the chi-square test obtained $P\text{-Value} = 0.006$ means that there is a relationship between attitude and pesticide poisoning in farmers in the Kembang Kuning Village, Cepogo District.

Researcher's assumption relates to the fact that there are still some fertilization workers who do not use PPE so that many of them experience symptoms of chemical fertilizer poisoning because workers do not use gloves and shoes as a form of prevention against symptoms of chemical fertilizer poisoning. In addition, some workers did not wash their hands with soap in order to avoid symptoms of poisoning. Then, many of the workers only use PPE when supervised by the Foreman of PT Mapoli, so that in this case workers are still lacking in awareness to use personal protective equipment to prevent symptoms of fertilizer poisoning.

This study is in line with research conducted by Novariyanti (2017) that respondents who experienced a lot of symptoms of poisoning were respondents who acted not in accordance with guidelines for the use of pesticides as many as 25 respondents (96%). Other research that is in line is the research conducted by Puspita (2017) that the respondents who experienced symptoms of poisoning were mostly found in respondents who did not use PPE as many as 53 respondents (65.4%). The results of statistical analysis using the chi-square test were obtained $p\text{-value} = 0.003$ means that there is a relationship between the action with the

symptoms of poisoning caused by vegetable spraying farmers in Sidomukti Village, Bandungan District, Semarang Regency.

Researcher's assumptions are related to OSH management at PT Mapoli Raya which is not applied is in line with the symptoms of poisoning in fertilizing workers. This is because the company does not provide supervision in accordance with OSHMS to workers so that many of the workers do not know about poisoning caused by chemical fertilizers. This can also occur because the company does not provide training so that there are still a large part of fertilization workers who experience symptoms of poisoning while doing fertilization work. This research is in line with research conducted by Haryani (2015) that Pertamina TBBM Jambi can be categorized well in the implementation of OSHMS. This can be seen from the results of OSHMS using David Easton's system theory which shows that all the existing indicators are running quite well. Existing inputs in the form of existing infrastructure are very supportive of the implementation of OSHMS, conducted OSHMS training to employees to improve the value of existing HR. Outputs in the form of results can be seen from the zero accident accidents at Pertamina TBBM Jambi.

Research that Pankey (2012) states that OSHMS has been planned and implemented well. Standards and guidelines used to regulate this system are compiled in the Work Quality, Safety and Health Plan and Environmental Project. The basis for implementing these procedures is adjusted to international standards, the Occupation Health and Safety Management System 18001:1999 which have similarities with OSHMS regulated in the Minister of Manpower Regulation Number PER.05/MEN/1996. The implementation of OSHMS has a good effect on companies and workers, it can be seen from the number of workers who experience accidents or occupational diseases is still relatively low.

Conclusion

There are significant relationship between knowledge, attitudes and actions with the symptoms of chemical fertilizer poisoning in fertilizer workers and the implementation of occupational safety and health management in PT. Mapoli Raya.

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