

Occupational Dermatoses Disease in Tobacco Farmers in Jember 2017

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Abstract: Tobacco farmers in Indonesia are the largest number in ASEAN amounted to 527,688 people. From this number, most of the farmers are in East Java that is amounted to 301,867 people. The purpose of this study is to analyze the incidence of dermatoses cases due to work on tobacco farmers and the affecting factors. This research employed the observational technique and it was conducting at the time when the tobacco farmers were harvesting their plantation product. The population and sample of this research were taken from one village. 46 people were recruited to be the sample of this research. The variables studied include independent variables (respondent characteristics and behavioral use of PPE (Personal Protective Equipment) and personal hygiene) while dependent variables (Occupational dermatoses skin disorder). The prevalence of OD in a hamlet which is one of the areas for tobacco farming amounted to 13.04%. female experienced more Occupational dermatoses (16.7%) when compared with men. Tobacco farmers with more smoking behavior experienced more OD (13.3%). Tobacco farmers who encountered OD and positive cotinine content were 18.5%. When compared to tobacco farmers who experience OD, the positive cotinine is 83.3%. The conclusion is that Tobacco Farmers may be exposed to occupational dermatoses. The cause is because in the process of working they not only plant and pick tobacco leaves but also process the drying and packing up to the storage. The incidence of OD is related to smoking history, duration of work, occupational status of cotinine content and use of APD.

1 INTRODUCTION

Tobacco farmers in Indonesia are the largest number in ASEAN amounted to 527,688 people. From this number, most of the farmers are in East Java that is amounted to 301,867 people¹. In East Java which becomes the region for tobacco farmers are Jember, Probolinggo, Lumajang, Pamekasan. Research on the health problems of tobacco farmers was often done by researchers related to the risk of green tobacco sickness. There has been a lot of research related to the high levels of urinary cotinine associated with the use of personal protective equipment, personal hygiene and long exposure.

The Green Tobacco sickness suffered many tobacco farmers suffer has been previously proven, furthermore, it is very important to study other diseases that can increase the risk of GTS. The incidence of GTS is caused by the entry of nicotine from tobacco leaves through peasant skin. Nicotine from tobacco leaf can enter into the body through the healthy skin. If the skin is protected by a non-

translucent work suit, the cotinine level can be prevented. However, if the farmer's skin has many lesions or been exposed to dermatoses. This will increase the level of cotinine in the body. Tobacco farmers are potentially affected by occupational dermatoses, this condition will aggravate the GTS case

The risk of dermatoses due to work is caused in the work process undertaken by these farmers ranging from the phase of planting - harvesting - drying - packing. At each phase, there are risks that can lead to occupational dermatoses disease. In the planting phase, the farmers are exposed to fertilizers and pesticides. Both of these chemicals can cause acute irritation. In the harvesting phase, there are mechanical scratches with equipment for harvesting. Scratches on the skin can cause acute lesions. The drying and packing phase can also cause acute and chronic wounds. This condition can be prevented if these tobacco farmers use personal protective equipment in the form of rubber gloves. The purpose of this study is to analyze the incidence of

dermatoses cases due to work on tobacco farmers and the affecting factors.

2 METHODS

This research was conducted in an observational manner and implemented at the time these farmers were harvesting tobacco. Population and sample are tobacco farmers in the location of 1 village in East Java. The variables studied include independent variables (respondent characteristics and behavioral use of PPE (Personal Protective Equipment) and personal hygiene) while dependent variables (Occupational dermatoses skin disorder). Occupational dermatoses (OD) skin disorder is a disorder in the form of acute and chronic symptoms. Symptoms of acute skin disease are characterized by reddish laions, for symptoms of chronic skin diseases accompanied by skin eruptions, thickening, and hyperkeratosis. Data analyzed descriptively using

computer software. The content of cotinine is measured through laboratory testing.

3 RESULTS

Tobacco farmers are particularly susceptible to Occupational dermatoses which can be seen directly, either by GTS or by cotinine levels. The prevalence of OD in a hamlet which is one of the areas for tobacco farming amounted to 13.04%. The causal factor can be physical, mechanical, chemical, and biological. Physical factor is derived from the heat of the sun. Furthermore, the cause of mechanical factor is when the farmers pick and tie these tobacco leaves to show. The respondents who suffer from OD will be analyzed in relation to the work, the use of personal protective equipment and the duration of exposure and work processes undertaken.

The results of the description of individual characteristics variable of tobacco farmers can be seen in the table below.

Table 1: Individual characteristics of tobacco farmers and their relation to Occupational Dermatoses.

No.	Variable	Experiencing Occupational Dermatoses		
		Yes n (%)	No n(%)	
1.	Gender	Male	3 (12)	22 (88)
		Female	3 (16.7)	18 (83.3)
2.	Smoking History	Yes	4 (13.8)	25 (86.2)
		No	2 (11.8)	15 (82.2)
3.	Status	Farmer	0	4(100)
		Landowner	10 (47.6)	11 (52.4)
		Both of them	8 (61.5)	5 (38.5)
4.	Working Period	<1 year	0	1 (100)
		≥1 year	6 (13.3)	39 (86.7)
5.	Working period in tobacco plantation in one year	<3 months	1 (14.3)	6 (85.7)
		≥3months	5 (12.8)	34 (81.2)

The results of the individual characteristics of tobacco farmers showed that based on the gender variable, female experienced more Occupational dermatoses (16.7%) when compared with men. Tobacco farmers with more smoking behavior

experienced more OD (13.3%) when compared with non-smokers. Landowner status also indicates a difference in the number of farmers who experience occupational dermatoses. From the data, 61.5%farmers who also own land experience OD.

Among farmers who suffer from OD, farmers who have worked for more than 3 months in a year have more proportion than farmers who work only for 3 months. GTS is one of the syndromes that should be considered in tobacco farmers. Tobacco farmers who encountered OD and positive cotinine content were 18.5%. When compared to tobacco farmers who experience OD, the positive cotinine is 83.3%.

One of the preventive efforts for the occurrence of OD is using PPE. In practice, not all farmers use PPE. Description of APD usage on tobacco farmers will be presented in the table below.

The use of long-sleeved shirt against OD can indicate that farmers who have never used long-sleeved shirt have the greatest proportion among other behaviors amounted to 25%. Not using trousers has the greatest contribution amounted to 22.2% experiencing OD. There are 16.2% of farmers

who do not use an apron and have OD. The use of raincoats is necessary in case of rain when farming tobacco. Among people who are affected by OD, farmers who never used raincoats have a greater proportion of 83.3%. Gloves are one of the most important PPDs to prevent OD in the hands which are the most heavily interacted body part with tobacco. All farmers who experience OD never use gloves. There were 18.3 % farmers who do not use gloves and having OD. The use of the mask is an attempt to avoid the ingestion of particles from tobacco to enter the body. Among people who have OD, 50% never use a mask, whereas farmers who never use mask will likely suffer OD amounted to 12%.

Images of OD symptoms can be seen in the figure below.

Table 2: APD use in tobacco farmers and their relation to OD.

No.	Variable		Experiencing Occupational Dermatoses	
			Yes	No
			n(%)	n(%)
1.	Shirt with Long Sleeves	Never	1 (25)	3 (75)
		Sometimes	2 (20)	8 (80)
		Always	3 (8.9)	29 (90.1)
2.	Trousers	Never	2 (22.2)	7 (77.7)
		Sometimes	1 (14.3)	7 (87.5)
		Always	3 (10.3)	26 (89.6)
3.	Apron	Never	6 (16.2)	31 (83.8)
		Sometimes	0	7(100)
		Always	0	2(100)
4.	Raincoat	Never	5 (14.3)	30 (85.7)
		Sometimes	0(0)	9 (100)
		Always	1 (50)	1(50)
5.	Gloves	Never	6 (18.2)	27 (81.8)
		Sometimes	0 (0)	11 (100)
		Always	0 (0)	2 (100)
6.	Mask	Never	3 (12)	22 (88)
		Sometimes	2 (14.3)	12(85.7)
		Always	1 (14.3)	6 (85.7)



Figure 1: OD symptoms on the hand. These symptoms generally appear during the harvesting season. In general, they do not wear gloves when doing the sorting process of tobacco leaf.

4 DISCUSSION

Female are more prone to experience OD when compared with men. The results of this study are consistent with the research results conducted by Diepgen et.al² and Hon et al³ which state that the prevalence of OD disease is greater and more common in female than in the male. It also deals with the immune system and the various functional differences that exist in a woman's body. The link between smoking and drinking alcohol behaviors toward OD occurrence is in accordance with research conducted by Lee⁴ et al stating that simultaneous smoking behavior and drinking alcohol will accelerate and aggravate the incidence of dermatoses. It is strongly recommended to stop the behavior of smoking and drinking alcohol. Tobacco farmers with the status of landowners as well as workers in their farms have the greatest proportion of others. This is closely related to the length of time working on land or tobacco farming. Farmers and landowners will indirectly spend more time on tobacco farms comparing to regular farmers⁶. Longer exposure will be a greater risk to experience OD⁷. The length of time exposed and the duration of work will affect the amount of exposure and dose-response that will be accepted by tobacco farmers. Meding mentions that the longer the dose of cotinine received by tobacco farmers the greater the risk. Thus, increasing the incidence of acute dermatoses up to chronic. Cotinine can be used to estimate the amount of toxic tobacco exposure on farmers. Cotinine may be associated with GTS⁷. Cotinine can be absorbed through tobacco leaf and can also come from nicotine that does biotransform into cotinine in the body.

It is very important for tobacco farmers to use PPE when working in the tobacco field. PPE is used to prevent direct contact between the body and tobacco either through the skin or inhalation. From

the results of the study, it can be seen that all farmers who do not use PPD rank most in number experiencing the Occupational Dermatoses when compared with tobacco farmers who use PPE. PPE can prevent tobacco from tobacco plants to make contact with the body directly. It can also be used to minimize the amount of contact. PPE can prevent the emergence of various health problems caused by tobacco. It is suggested to use PPE and wash the hands with water after doing any activity on tobacco farming. This method is very effective to prevent various health problems related to tobacco farming.

5 CONCLUSION

The conclusion is that Tobacco Farmers may be exposed to occupational dermatoses. The cause is because in the process of working they not only plant and pick tobacco leaves but also process the drying and packing up to the storage. The incidence of OD is related to smoking history, duration of work, occupational status of cotinine content and use of APD.

The most affected areas of lesions are the palms, fingers, and knees. The incidence of skin diseases should be prevented if they use the appropriate protective equipment.

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