

The relationship of the use of mask with the event of acute respiratory tract infection (ARI) in rice miller workers in peukan bada district, Aceh Besar

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ABSTRACT

Acute Respiratory Infection (ARI) has become a serious problem for rice mill workers. the majority of workers working in rice mills have inhaled dust from rice grains produced by milling and drying. Use PPE masks during the rice milling process is an alternative to reduce the incidence of ARI. Therefore, the purpose of this study was to determine the relationship between the use of masks and the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar. This research is descriptive analytic with a cross-sectional design. This research was conducted in July at the Rice Mill, Peukan Bada District, Aceh Besar. The population in this study were workers in the rice mill as many as 25 workers from 5 rice mills in Peukan Bada District, Aceh Besar. The sample in this study is the total of the population. The results of the study show that there is a relationship between the availability of PPE with the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar with a p value of 0.012. there is a relationship between the method of use and the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar with a p value of 0.001. Mask suitability has no relationship with the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar with a p value of 0.43

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INTRODUCTION

The SDG's program or the Sustainable Development Goals are a sustainable development program that must be achieved by 2030. SDG plans or Sustainable Development Goals are sustainable development plans to be achieved by 2030^{1,2}. One of the SDG's global targets for the Sustainable Development Goals is to combat respiratory diseases³. Acute respiratory infections used to be a major health problem for children under the age of 5 in Indonesia⁴. Acute respiratory infections are one of the causes of high morbidity and mortality in the world, including Indonesia. Compared with other ASEAN countries, Indonesia has the highest mortality rate among children under 5 due to acute respiratory infections. An acute respiratory infection (ARI) is an infectious disease that

affects one or more parts of the airways, from the nose (upper airway) to the alveoli (lower airway), including adnexal tissues such as the sinuses, middle ear cavity, and pleura. Acute respiratory infections were once a major health problem in Indonesia⁷. This disease can usually occur as a result of viruses, bacteria, or particles that can enter the lungs causing serious infections⁸. ARI that occurs in children, if not treated with proper treatment can cause death⁹. Prevalence According to the 2018 Riskesdas National Report in Indonesia, there are five provinces with the highest contributors, namely East Nusa Tenggara (15.5%), Papua (13.1%), West Papua (12.3%), Banten (11.9%) and Bengkulu (11.8%)¹⁰. In Aceh, especially in the Peukan Bada sub-district, adult ARI data was obtained with a percentage of 12.54% of all diseases that occurred (data from Peukan Bada Health Center District. Most of the people in Pekan Bada work as farmers. The causes of ARI include fine dust from rice husks that are released into the environment. According to the researchers' initial survey, the majority of workers who work in rice mills inhale dust from rice grains produced by milling and drying. In the work location, it is rare to see workers wearing PPE masks during the rice milling process. In addition, many types of masks used by workers do not meet the requirements, such as the use of clothes that are used as respiratory covers to avoid dust. The lack of maximum use of masks is a factor that causes dust to be inhaled by workers. Inhaled dust is suspected to be one of the causes of ARI. Based on the above background, it is necessary to explore the relationship between the use of masks and the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar.

METHODS

This research is descriptive analytic with a cross-sectional design that is looking at the relationship between the use of masks and the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar. The population in this study were workers in the rice mill as many as 25 workers from 5 rice mills in Peukan Bada District, Aceh Besar. The sample in this study is the total of the population. This research was conducted in July at the Rice Mill, Peukan Bada District, Aceh Besar. Collecting data using koisiner and checklist table. Data processing using Tabulating, Coding and Editing techniques. Data analysis data using univariate and bivariate statistical tests using the chi-square test.

RESULTS AND DISCUSSION

Research location

Peukan Bada District is one of the sub-districts in Aceh Besar District. In Peukan Bada District there are 5 rice mills, the locations of rice mills in Peukan Bada District, Aceh Besar are Lampisang Village, Lamlumpu Village, Lam Iseuk Village. The workers in the rice mills do not all use PPE masks at work. According to them, the use of masks makes them uncomfortable while working. The tools in the rice mill have been used since 1979. Routine maintenance carried out on the machine has made the machine durable until now.

Univariate Analysis

Age characteristics of rice mill workers Characteristics of rice mill workers in Peukan Bada Aceh Besar by age can be seen in the table below:

Table 1. Age Group Frequency Distribution

No	Age	Number of Respondents	
		f	%
1	15-25	7	28
2	26-35	11	44
3	36-45	6	24
4	46-55	1	4

	Amount	25	100
	Mask Availability		
1	There isn't any	10	40
2	There is	15	60
	Amount	25	100
	Suitability of Masks Used		
1	Not eligible	14	56
2	Qualify	11	44
	Amount	25	100
	How to Use Mask		
1	Not eligible	12	48
2	Qualify	13	52
	Amount	25	100
	ARI incident		
1	There is	14	56
2	There isn't any	11	44
	Amount	25	100

The table above shows that most of the respondents are aged 26-35 years (44%). 10 people (40%). The suitability of the masks used by respondents who did not meet the requirements was 14 people (56%). Based on table 6, it is known that there are 12 people (52%). that respondents who have experienced the incidence of ARI as many as 14 people (56%).

Bivariate Analysis

Bivariate analysis was carried out to determine the relationship between the use of PPE on the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar by cross-analysis, the results of data processing can be seen in the following table:

Table 2. Relationship between Availability of Masks and Incidence of ARI

No	Mask Availability	ARI incident				Number of Respondents		P value
		There is	%	There isn't any	%	Total	%	
1	There isn't any	9	90	1	10	10	100	0.012
2	There is	5	33.3	10	66.7	15	100	

Based on table 2, it is known that there are 9 respondents (90%). Meanwhile, 1 person (10%). Based on statistical tests obtained p value <0.05 (0.012) so that there is a relationship between the availability of PPE with the incidence of ARI in rice mill workers in Peukan Bada District, Aceh Besar

Table 3. The relationship between the suitability of the mask used and the incidence of ARI

No	Suitability of Masks Used	ARI incident				Number of Respondents		p
		There is	%	There isn't any	%	Total	%	
1	Not eligible	9	64.3	5	35.7	14	100	0.43
2	Qualify	5	45.5	6	54.5	11	100	

Based on table 3, it can be seen that the suitability of the masks used by respondents who did not meet the requirements and experienced the incidence of ARI was 9 people (64.3%) while the suitability of the masks used by respondents who did not meet the requirements and did not experience the incidence of ARI was 5 people (35.7 %). Based on statistical tests obtained p-value was 0.05 (0.43) there is no relationship between the suitability of the masks used by respondents with the incidence of ARI.

Table 4. the relationship between how to use a mask with the incidence of ARI

No	How to Use Mask	ARI incident				Number of Respondents		P
		There is	%	There isn't	%	Total	%	

		any						
1	Not eligible	11	91.7	1	8.3	12	100	0.001
2	Qualify	3	23.1	10	76.9	13	100	

Based on table 4, it is known that the method of using masks of respondents who did not meet the requirements and experienced the incidence of ARI were 11 people (91.7%). While the method of using masks that did not meet the requirements and did not experience the incidence of ARI was 1 person (8.3%). Based on statistical tests obtained p value <0.05 (0.001). There is a relationship between the use of masks and the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar

Discussion

There is a relationship between the use of PPE on the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar. ARI cases can attack vulnerable groups such as rice millers who are exposed to outside air pollutants, of course the use of PPE is very necessary. PPE used in the form of masks plays an important role in minimizing the risk of ARI in the workplace¹¹. The supply of masks in rice mills is a determining factor in the incidence of ARI. If masks are not available at work, workers will experience ARI symptoms resulting from rice dust.

In some of the same studies, it was also found that there was a significant relationship between the use of personal protective equipment masks and the incidence of acute respiratory infections in furniture industry workers with a significant value of p-value = 0.000 <0.05^{12,13,14}. Rice mill workers are very susceptible to the incidence of ARI disease because of the length of work and lack of public awareness to clean the workplace after doing rice milling so that the occurrence of Acute Respiratory Infection (ARI)^{15,16}. The results also found that the availability of masks has a relationship with the incidence of ARI value p < 0.05 (0.012). The masks available are special disposable masks. However, there are some workers who are more comfortable wearing other respiratory protective equipment such as gloves that are used as masks or clothes that are used as masks. PPE used in the form of masks plays an important role in minimizing the risk of ARI occurrence in the workplace. The better the knowledge and attitudes of the workers, the more obedient workers are in the use of PPE Masks¹⁷. Overall the level of knowledge of workers about PPE Masks in general is quite good. However, the knowledge of this main informant still only knows, namely being able to explain the so-called risks and hazards of the informant's work, what PPE should be used, which areas are required to use PPE, the goals and benefits of using PPE and the impact of not using PPE. There is a relationship between the availability of PPE with the incidence of ARI, the result is p = 0.001. How to use a mask has a relationship with the incidence of ARI.

There is a significant relationship between knowledge and attitudes with compliance with the use of personal protective equipment for street sweepers in Singkil and Tuminting Districts¹⁷. Health Office In order to be able to provide knowledge about the impact of not using personal protective equipment and always direct control in the field so that sweepers use personal protective equipment and avoid occupational diseases. The results of other studies show that there is a relationship between knowledge and compliance with using PPE in hospitals. The suitability of the masks used with the incidence of ARI that occurred in the rice mill had no relationship. the masks used in the rice mills did not affect the incidence of ARI, because the masks used were covered. The method of using masks used with the incidence of ARI that occurred in rice mills had a significant relationship. The researcher's assumption is that the use of worker masks has met the requirements. How to use a mask must cover an important part of the use of the mask itself. Compliance with the use of PPE according to rational standards can be influenced by factors other than knowledge, such as the availability of PPE, fear, length of work experience, environmental supports, and personal responsibility.

CONCLUSION

There is a relationship between the availability of PPE and how to use it with the incidence of ARI among rice mill workers in Peukan Bada District, Aceh Besar. While the suitability of masks has no relationship with the incidence of ARI in rice mill workers.

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