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Research Articles

## Health protocol implementation with Scabies at Junior High School Kebumen during the COVID-19 pandemic

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### ABSTRACT

Scabies is a skin disease that is very difficult to get rid of in Islamic boarding schools. Even with the implementation of a fairly strict health protocol during the COVID-19 pandemic, it has not been able to stop its spread. This study aimed to determine the relationship between the implementation of health protocols and scabies cases that occurred at the VIP-Al Huda Junior High School Kebumen during the COVID-19 pandemic. This was an analytic observational study with a case-control research design. The data was collected from December 2021 to February 2022. There were 100 male and female students in grades 7 and 8 who became the study's sample, consisting of 50 students in the case group and 50 students in the control group. Chi-square was used to analyze the data. The results reported that there is a relationship between adherence to the implementation of health protocols (OR 4.750; p 0.001) and scabies cases at the VIP Al-Huda Junior High School Kebumen during the COVID-19 pandemic. It was concluded that compliance with the implementation of health protocols related to scabies cases that occurred at the VIP Al-Huda Junior High School Kebumen during the COVID-19 pandemic.



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### INTRODUCTION

Scabies is a skin disease that is an obligate parasitic infection in humans caused by *Sarcoptes scabiei* var *hominis* (Thomas et al., 2017). Scabies is a skin disease with a high prevalence worldwide, with an estimated 200 million cases annually (So et al., 2021). In Indonesia, based on Risesdas 2018, the number of cases of scabies is still an infectious disease that is ranked 3rd out of the 12 most skin diseases in Indonesia (Prasasty, 2020).

Specific symptoms of scabies are in the form of erythematous papules and itching due to mites and products produced by mites such as sputum, eggs, and scabies that cause type I and type IV hypersensitivity (Salavastru et al., 2017). The main reason for the easy spread of scabies is population density, low awareness of clean living, sleeping together, and sharing clothes and towels (Sara et al., 2018). During the COVID-19 pandemic, public awareness of a cleaner life tends to increase to prevent the transmission of COVID-19 (Makruf & Farhan, 2021). Nevertheless, the spread of scabies cases during the pandemic is still quite high. This can be seen in Turkey, where scabies cases became 5.59 times in April 2020 and in the following month became 12.91 times compared to 2019 (Kutlu & Metin, 2020). In Germany, scabies increased by two times in the first four months of 2020 compared to the previous year (Turan & Metin, 2021). In addition, cases of scabies in Spain also drastically increased from March to May 2020 than five years ago (Martínez-Pallás et al., 2020). A study in Indonesia on handling skin health during the COVID-19 pandemic in Ranah Village, Riau, showed that during the COVID-19 pandemic, the most common skin disease was scabies with an estimated 59.18%. One of the reasons for the increase in cases was that during the COVID-19 pandemic, there was a stay-at-home policy so that learning activities were carried out at

home online. This has led to a new cluster of intrafamilial scabies cases spreading because, at the beginning of the COVID-19 pandemic, Islamic boarding school students returned to their home areas where scabies cases in Islamic boarding schools were still quite high (Zahtamal et al., 2020).

Prior to the COVID-19 pandemic, the number of scabies cases in Islamic boarding schools was quite high. For example, in Islamic boarding schools in Central Java, the prevalence of scabies reached 54.1% (Istikomah, 2020). Student behavior that can cause easy transmission of scabies disease such as using toiletries, clothes, prayer tools, and towels in turn, and frequently changing beds such as pillows, bolsters, bed linen, and blankets (Widuri et al., 2017). The cleanliness of the boarding school environment that is not maintained is also one of the factors that can facilitate the transmission of scabies disease (Rina, 2017).

During the COVID-19 pandemic, there has been no research on the number of scabies cases in Islamic boarding schools. Policies at Islamic boarding schools are different both before the pandemic and during the COVID-19 pandemic. Islamic boarding schools that have carried out offline learning activities during the COVID-19 pandemic must adhere to strict health protocols. Some health protocols must be implemented include social distancing, not borrowing personal tools, and washing hands (Kemendikbud, 2020). Based on this background, the researcher considers it necessary to conduct research related to the relationship between the application of health protocols and cases of scabies at the VIP Al-Huda Junior High School during the COVID-19 pandemic.

### METHODS

This was an analytic observation with a case-control research design which was conducted



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at VIP Al-Huda Junior High School from December 2021 to February 2022. Purposive sampling was applied in this study. The inclusion criteria in this study were students aged 13-14 years, living in Islamic boarding schools for 6 months during the COVID-19 pandemic, and having symptoms of scabies disease (for the case group). As well as for the exclusion criteria, namely students who lived in Islamic boarding schools before the COVID-19 pandemic. There were 100 students from classes 7 and 8, both female and male.

The independent variable in this study was compliance with the implementation of health protocols, while the dependent variable was scabies cases during the COVID-19 pandemic. The respondent's compliance in implementing the health protocol was measured by the respondent's compliance in maintaining distance, not crowding and washing hands which was assessed using 14 questionnaires with a Likert scale. Respondents suffering from scabies were determined based on anamnesis and physical examination conducted by a doctor. Data analysis was carried out in the form of univariate analysis and bivariate analysis with chi-square test and odds ratio. The analysis was carried out using the SPSS16.0 for Windows program, which has a 95% confidence level.

The questionnaire used has been tested for validity and reliability by previous researchers. Before the research was conducted, prospective respondents were given an informed consent form and signed it as an agreement to participate in the study. Then, a scabies examination by a doctor took 50 respondents who suffered from scabies (case) and 50 healthy respondents (control) to fill out the research questionnaire. The data that has been collected will be analyzed using univariate and bivariate analysis with chi-square test and odds ratio. The analysis was

carried out using the SPSS16.0 for Windows program, which has a 95% confidence level. This research was conducted after obtaining approval from the ethics committee of the Faculty of Medicine and Health Sciences, Muhammadiyah University of Yogyakarta with number 301/EC-KEPK FKIK UMY/XI/2021

## RESULTS

Table 1 shows that the respondents in this study were homogeneous; most of the respondents who suffered from scabies aged 13 years were 30 students. The respondents in this study who suffered from scabies mainly were male, as many as 30 students.

Based on table 2 shows that most of the students, as many as 42 students (42%), are still not compliant with implementing the COVID-19 health protocol.

Based on table 3, the number of respondents who are less compliant in implementing health protocols and suffer from scabies is 30 (60%), more than respondents who do not suffer from scabies, namely 12 (24%). The Chi-Square test results that have been corrected by Fisher Exact obtained P Value Sig.  $0.001 < 0.05$  means that there is a relationship between health protocol compliance and scabies cases at the VIP Al-Huda Junior High School Kebumen during the COVID-19 pandemic. The odds ratio value shows that students who have low adherence have a 5.758 times risk of developing scabies compared to students who are obedient in implementing health protocols. The results of the Confident Interval (CI) state that respondents who have a low level of compliance have a risk of at least 2,008 times up to a maximum of 11,453 to suffer from scabies disease.



**Table 1.** Distribution of subjects by age and gender

Characteristic	Case	Control	Amount
<b>Age</b>			
13	30	25	55
14	20	25	45
<b>Gender</b>			
Male	30	22	52
Female	20	28	48

**Table 2.** Frequency distribution of compliance with health protocols

Category	Amount	Percentage
Less	42	42%
Compliance	58	58%

**Table 3.** The relationship between students compliance in implementing health protocols during the COVID- 19 Pandemic with cases of scabies at the VIP Al-Huda Junior High School kebumen

Adhere	Scabies Cases				P	95% CI	OR
	Case	%	control	%			
Less	30	60%	12	24%	0.001	2.008-11.453	4.750
Compliance	20	40%	38	76%			
Total	50	100%	50	100%			

## DISCUSSION

In Indonesia, scabies is still a significant concern because in 2013 cases ranged from 3.9-6%, and in 2016 there were 4.60%-12.95% cases, and in 2018 cases of scabies were 6.9% (Prasasty, 2020; Sunarno & Hidayah, 2021). The prevalence of scabies in each region in Indonesia is also quite varied. The prevalence of scabies cases in East Java was recorded at 72,500 cases (Puspita et al., 2018). In addition, the number of scabies cases in 2008 in flats and landfills in Jakarta was 6.20%. The prevalence of scabies cases in Boyolali Regency reached 7.36%, Semarang reached 5.80%, and Pasuruan Regency reached 8.22% (Sembodo et al., 2021).

Before the COVID-19 pandemic, the number of scabies cases in Islamic boarding schools was still quite high. It can be seen in several

Islamic boarding schools in Central Java, for example, at the Matholiul Huda Al Kausar Islamic Boarding School, Pati, which showed very high cases of scabies, as many as 84.8% (Mayrona et al., 2018). At the An-Najach Islamic Boarding School, Magelang, scabies cases were up to 43%. In addition, cases of scabies in East Jakarta also showed a relatively high number of 51.6% (Avidah et al., 2019). This can be caused because transmission occurs very quickly through direct skin contact, for example, by shaking hands and sleeping together, or indirectly through clothing (Salavastru et al., 2017). Now, the COVID-19 pandemic has increased public awareness for a cleaner life, which can be seen from public awareness in implementing health protocols (Makruf & Farhan, 2021). Increased clean living behavior can affect the spread of scabies cases (Cletus., 2014).



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The results reported that more cases of scabies occurred in men. These results are also in accordance with the research conducted by Anggraeni & Indira in 2019 and the research of Juliansyah & Minartami in 2017, where these two studies show a relationship between gender and scabies cases (Anggreni & Indira, 2019; Juliansyah & Minartami, 2017). In addition, research conducted by Ratnasari & Sungkar in 2014 also supports the results of this study because it shows that gender is associated (Ratnasari & Sungkar, 2014). This can happen because men are more active than women, thereby increasing the possibility of interacting directly with many people, including people with scabies so that they can become a means of transmitting scabies disease (Anggreni & Indira, 2019). In addition, women tend to pay more attention to their appearance and keep their skin clean than men (Ratnasari & Sungkar, 2014).

The results also show that most cases of scabies occur in younger respondents, namely 13 years. This is in accordance with research conducted by Yudhaningtyas in 2018, which showed that age had a relationship with scabies cases (Yudhaningtyas, 2018). Similar results were also found in a study by Imartha et al in 2017, indicating that age is associated with scabies cases. A study by Suparmi & Supriatna in 2017 also showed a relationship between age and scabies cases. Age can be related to scabies cases because the individual's way of thinking about a disease will improve with increasing age (Imartha et al., 2017; Suparmi & Supriatna, 2015). Therefore, humans will do better things in maintaining cleanliness and preventing and dealing with scabies disease (Ramadhan et al., 2019).

Although there has been no previous research regarding the relationship between implementing health protocols and scabies cases during COVID-19, based on the results of the analysis above, it shows that there is a

relationship between student compliance in implementing health protocols for scabies cases at VIP Al-Huda Junior High School during the COVID-19 pandemic. The application of the health protocol referred to in this study is not crowding, washing hands, and maintaining distance. Not crowding can prevent the transmission of scabies cases because crowded locations can be a strategic place for the spread of scabies cases either directly or indirectly (Sfeir & Munoz-Price, 2014). This can be caused by direct transmission through skin contact, which only takes a short time of 15-20 minutes (Banerji, 2015). In addition, transmission without direct contact can occur through sharing personal tools such as clothing and toiletries because mites can live outside the host's body for 24 to 36 hours (Chandler & Fuller, 2019; Tidman & Tidman, 2013).

The second health protocol is to wash hands with an alcohol-based hand sanitizer or soap for 20 seconds to kill the COVID-19 virus (WHO, 2020). The use of water, soap and alcohol can actually not kill scabies mites in the human body (Leistner et al., 2017). However, the use of alcohol as well as soap and water can prevent secondary infection because it can kill microorganisms, including bacteria (Ataee et al., 2017). Soap used for washing hands can be divided into antimicrobial soap and ordinary soap. The difference between the two is that antimicrobial soap contains antimicrobial properties such as triclosan which has been shown to be more selective by inhibiting enoyl-acyl-carrier protein (ACP) reductase, which causes a decrease in fatty acid synthesis. Fatty acids are important ingredients in cell membranes; if reduced, fatty acids will cause cells to die (Giuliano & Rybak, 2015). However, the effectiveness of antimicrobial soap and ordinary soap in killing bacteria did not significantly differ (Kim & Rhee, 2016). However, soap is more recommended than alcohol-based hand sanitizer because of its



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ability to kill bacteria better. Most alcohol-based hand sanitizers contain isopropanol, ethanol, n-propanol, or a mixture of them as active ingredients. The power of alcohol to kill microbes is due to its ability to cause protein denaturation and coagulation which causes the loss of the protective layer on the microbe so that it loses its function (Gold et al., 2022). Soap and water are considered more effective than hand sanitizers because when using soap and water, bacteria will be released from the hands along with the water used to wash hands. Meanwhile, in the use of hand sanitizers, not all bacteria are lost from the hands (Cordita et al., 2019).

Lastly, during the COVID-19 pandemic, there is a policy of maintaining a distance, commonly referred to as social distancing of at least one meter when standing, sitting, or walking with other people to prevent the transmission of COVID-19 (WHO, 2020). This policy can prevent physical contact between individuals. The existence of distance between individuals can prevent transmission of scabies because although female mites can move at a speed of 2.5 cm/min, the mites cannot jump or fly (Gunning et al., 2019; Richards, 2021). The results of this study reveal a relationship between the application of health protocols and cases of scabies during the COVID-19 pandemic. Unfortunately, research on compliance with health protocols and cases of scabies during the COVID-19 pandemic is still limited, so little literature has been obtained to serve as a reference in research. In addition, the sample in this study was quite small because it only obtained data of 100 respondents and was not generalized to the general population.

### CONCLUSION

There is a relationship between compliance with the implementation of health protocols and cases of scabies at the VIP Al-Huda Junior

High School Kebumen during the COVID-19 pandemic and students with low compliance risk of developing scabies compared to students who comply in implementing health protocols.

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