

Leprosy Health Promotion during COVID-19 Pandemic in Indonesia



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ABSTRACT

Introduction: The COVID-19 pandemic has forced many conventional face-to-face health promotion events to be conducted in an adaptive manner to keep healthcare in promotion, prevention, and even curative measures delivered to healthcare providers and patients. The same applies to leprosy, where Indonesia is still ranked as the third largest country with leprosy burden. This study aims to give rise to newer methods of health promotion on leprosy during this COVID-19 pandemic.

Methods: Online training and case presentation workshop in the form of a KATAMATAKU webinar and live streaming via YouTube were held in August 2020. There were 120 general practitioners, 30 nurses, and 35 healthcare providers who registered and joined this event. Pre- and post-test were conducted to evaluate the participants' knowledge about the topics lectured during this training. Pre- and post-test were conducted using an online form, and all participants needed to answer several questions from each session. Participants were evaluated before the webinar began and after all sessions. We assessed the different scores from the pre- and post-test.

Results: In the general practitioner group, median scores were 68 (27 – 95) and 82 (50 – 100) for pre- and post-test scores, respectively, with a mean difference between post and pre-test of 14.23 ± 9.72 . In nurses and other health care providers, the median for the pre-test score was 56 (22-89), and the post-test was 72 (39 – 100), with a mean difference between the post and pre-test of 18.93 ± 10.27 .

Conclusion: In the pandemic situation, online seminars can be chosen as an effective method for health promotion to increase health care provider's knowledge. Pre- and post-test can be performed to evaluate participant's knowledge after the training. Regular training using online methods can be held in order to maintain participants' knowledge. We hope it can impact all health providers to continue their participation in the management of leprosy.

Keywords: Leprosy; COVID-19; health promotion; webinar, pandemic.

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INTRODUCTION

Leprosy, or Morbus Hansen, is a chronic infectious disease caused by *Mycobacterium leprae*.¹ It can be transmitted through droplets or direct contact with *M. leprae*-infected skin. Leprosy can cause permanent damage to skin, nerves, limbs, and eyes if left untreated,^{2,3} it also affects peripheral nerves, eyes, and mucosa of the upper respiratory tract.^{1,2,4}

Southeast Asia has the highest number of new leprosy cases in the world, while Indonesia is in the third rank after India and Brazil in terms of leprosy prevalence.⁵⁻⁷ In 2018, there were 14,397 new cases of leprosy found in Indonesia, especially in East and West Java. The prevalence of leprosy in East Java is 0.90

per 10,000 population.⁷ A higher leprosy prevalence found in developing countries has been reported to be caused by a lack of knowledge, inadequate preventive and promotive interventions, limited access to social and healthcare services, and economic welfare.^{5,6} Stigma from the community and the difficulty in accessing public health facilities would further lead to impeded health care for these leprosy patients, creating delays to early diagnosis and therapy that are very important in preventing further permanent disabilities in leprosy patients, such as blindness. Because of the COVID pandemic in all countries, including Indonesia, management of leprosy has become neglected. In a pandemic situation where

all activity was restricted, online webinars can be held to continue the leprosy management program.

Due to the high prevalence of leprosy in Indonesia, Universitas Indonesia has initiated a multi-disciplinary collaborative program named KATAMATAKU UI to support many aspects of leprosy management. This collaboration consists of multiple faculties and medical departments based in Universitas Indonesia, led initially by academic staff concerned with leprosy problems in Indonesia, among which were from the Ophthalmology, Dermatology, and Venereology Departments, as well as the Physical and Medical Rehabilitation Department. The collaborative work has expanded to involve many disciplines such

as psychology, technical and engineering, dentistry, law faculty, faculty of humanities, and vocational education programs. Many health promotions have been organized by KATAMATAKU, including the detection and management of leprosy patients in Sitanala, Tangerang, in 2018 and Singkawang, West Kalimantan, in 2019.

This project started focusing initially on health promotion programs for leprosy with mass social programs for examination, training, and counseling among the leprosy population and caregivers in the endemic area.⁸ Through these mass programs, much information has been extracted, including ocular manifestations of leprosy in Indonesian patients. Many workshops and seminars with medical Rehabilitation, Ophthalmology, and Dermato-Venerology Department have been conducted. Books and journal articles about health care services for leprosy patients and new models of visual acuity examination in leprosy patients have also been published by KATAMATAKU UI.^{6,8}

However, nearly all of these conventional offline social programs have stopped due to the global COVID-19 pandemic. The Indonesian government has conducted health promotion, surveillance, and chemoprophylaxis therapy to reduce the transmission of leprosy. In an effort to continue the promotive effort, KATAMATAKU UI has moved forward through adaptive online initiatives. We report this newer method of health promotion on leprosy during the COVID-19 pandemic, which we consider to be a feasible measure with sufficient coverage, as has been the offline previous programs. Hopefully, the online measure in this pandemic era, hopefully, will continue to increase awareness and, in the long run, reduce the incidence of new cases of leprosy and the number of disabilities due to leprosy.

METHOD

A web-based seminar (webinar) was held in August 2020 through a collaboration of KATAMATAKU UI (Faculty of Medicine University of Indonesia Jakarta), the public health office Kota Malang East Java Province, and the Faculty of Medicine Brawijaya University Malang, Indonesia. The webinar was held in two day sessions.

Many lectures about early detection, disability prevention, and complications of leprosy were discussed in this webinar. The first day of the seminar was designed for general practitioners, and the following day was held for paramedics and other health care providers.

Online training and a case presentation workshop via webinar and live streaming via YouTube were held after disseminating invitation links sent to health facilities around Malang and Jakarta through electronic posters. Participants were medical health providers who registered for the webinar series, consisting of 120 general practitioners, 30 nurses, and 35 other healthcare providers or social workers. The participants were mainly from the District Health Care office of Malang City, while several general practitioners came from other provinces to join this meeting. Healthcare providers were representatives from the community who were very functional in conveying messages and results of the training programs to the community and leprosy patients. They are very much expected to provide education to patients and their families.

Training was differentiated into two groups: general practitioners in group 1, and nurses and health care providers in group 2. The topics presented for all participants are Introduction to Disabilities in Leprosy Patients and the *Ramata-Kit* in Efforts to Prevent Leprosy Disabilities; Early Detection of Leprosy Disease, Prevention of Disabilities in Leprosy Patients and Making Simple Devices for Leprosy Patients, and Recognizing Eye Disorders in Leprosy Patients. Since the webinar was held during the pandemic, there was an additional topic on personal protective equipment and healthy skin for medical workers during the COVID-19 pandemic presented for general practitioners. Some workshops included leprosy case series and their comprehensive management in primary health care centers for general practitioners, nurses, and health providers.

Pre and post-tests were conducted throughout the program in order to measure the knowledge gained by each participant. The post-test was held during the same-day webinar. The questions in pre and post-tests were collected from

each lecture. Questions were arranged by each lecturer and reviewed by expert team in KATAMATAKU, including 2 certified trainers in the community of health. All scoring in pre and post-test was analyzed using SPSS. The questions set for the pre and post-test are shown in Table 1. Participants were categorized into poor category if they had less than 50% answer correctly, moderate if 50-75% question was correct, and good if more than 75% of answers were correct.

This study is part of an evaluation for program entitled "Pelatihan Dokter Umum dan Kader Kesehatan Kusta (Wasor) di dr. Saiful Anwar General Hospital Malang Jawa Timur". All subjects agreed to be included in this study and signed the informed consent.

RESULT

There was an overall increase in the post-test scores compared to the pre-test scores in all three groups of participants, i.e., general practitioners (Figure 1), nurses, and health providers (Figure 2). In the general practitioner group, a significant shift of correct answers was shown, where the number of participants in the pre-test moderate group reduced to one-third, the excellent group increased to twofold, and none were in the poor group by the end of the post-test. The median for the pre-test score in the general practitioner's group was 68 (27 – 95), while the post-test score was 82 (50 – 100), with a mean difference between post and pre-test scores of 14.23 ± 9.72 . In the nurses and healthcare providers group, the median value for the pre-test score was 56 (22-89), and the post-test was 72 (39 – 100), with a mean difference between pre- and post-test scores of 18.93 ± 10.27 .

In the general practitioners group, the median age for participants was 30, and most graduated from medical school (S1). Meanwhile, in the nurses and health care providers group, the median age was 44. About 32.3% had a bachelor's degree as their educational background.

In pre and post-tests, many general practitioners failed on question no. 11, about personal COVID-19 protection equipment, which can cause discomfort resulting from heat stress and dehydration, while the questions on interpretation

Table 1. Questionnaire for participants

Question for general practitioners
1. What are the cardinal signs of leprosy?
2. Which of the following leprosy patient types has a low chance of developing disability?
3. What is a leprosy reaction?
4. These are the 5 moments where you should wash your hand, EXCEPT:
5. What is the second step in washing hand?
6. Which of the following is the FALSE statement about washing hand?
7. The following statements are the risk factor of disability for lepers, EXCEPT:
8. What is the correct way to prevent disability in leprosy patient?
9. These following nerves are routinely examined in leprosy examination protocols, EXCEPT:
10. Which skin disease is not related to personal protection equipment usage?
11. The following personal COVID-19 protection equipment can cause heat stress and dehydration EXCEPT:
12. What is the common skin related side effect when using N95 mask?
13. What is the abnormal finding that commonly found in eyelid in leprosy patient?
14. What is the best way to prevent eye abnormality related to leprosy?
15. If the result of visual acuity examination was 1/300, what is the interpretation?
16. What is the interpretation of Hand Disability 1 (D1) in WHO Disability Index?
17. What is the interpretation of Eye Disability 2 (D2) in WHO Disability Index?
18. What activity can a leprosy patient do to prevent becoming disabled?
Questions for nurse and healthcare providers
1. What is the interpretation of Hand Disability 1 (D1) in WHO Disability Index?
2. What is the interpretation of Eye Disability 2 (D2) in WHO Disability Index?
3. What are the activities that leprosy patients can do to prevent disability?
4. What is the sign of leprosy?
5. Which part of our bodies that can be disabled due to leprosy?
6. How is the best way to take care the skin of leprosy patient?
7. The following statements are the risk factor of disability for leprosy patient, EXCEPT:
8. How is the correct way to prevent disability in leprosy patient?
9. These following nerves are routinely examined in leprosy examination protocols, EXCEPT:
10. How is the correct way to use eye ointment?
11. How is the best way to do "closing eye" exercise in order to prevent dry eyes?
12. How long could we use an eye drop after the bottle is opened?

of hand disability (D1) in the WHO Disability Index and risk factor of disability for leprosy patients were the ones most incorrectly answered by the nurse and health care providers group.

General practitioners, nurses, and health providers from three primary healthcares in the Malang district area presented cases of leprosy patients. Comprehensive treatment in rehabilitation, skin and also ocular involvement were discussed with consultants from the Ophthalmology, Dermatology-Venerology, and Physical Medicine and Rehabilitation Department, who shared their expertise in each case.

DISCUSSION

Leprosy has been well-documented for many centuries. If the disease is left untreated, or if the treatment is delayed, the patient could experience disabilities that are not only permanent but often progressive due to nerve damage.⁹ Complications of untreated leprosy,

including vision and limb weakness, can affect quality of life. In the United Kingdom, there are over one in five patients with leprosy who have a sight-threatening ocular complication.⁹ Early diagnosis, prompt treatment, and health promotion are crucial to reduce the spread of leprosy and disabilities caused by leprosy. Health education is essential to be introduced to the community on early signs of leprosy and to diminish the conventional stigma against the disease.¹¹ The stigma for leprosy patients is also an existing fact, especially in endemic countries. Stigma, limitations for participation, difficulties related to marriage, and problems in employment become the most commonly reported difficulties.¹⁰

Several health promotions about leprosy have been established around the world. Campaigns to raise awareness of leprosy, including its symptoms and therapy, have been carried out, including a project held by the World Health

Organization in Brazil.¹¹ Community-based health promotion to reduce the leprosy stigma has also been implemented in India. Education and counseling are effective and feasible to help reduce the stigma in leprosy patients.¹²

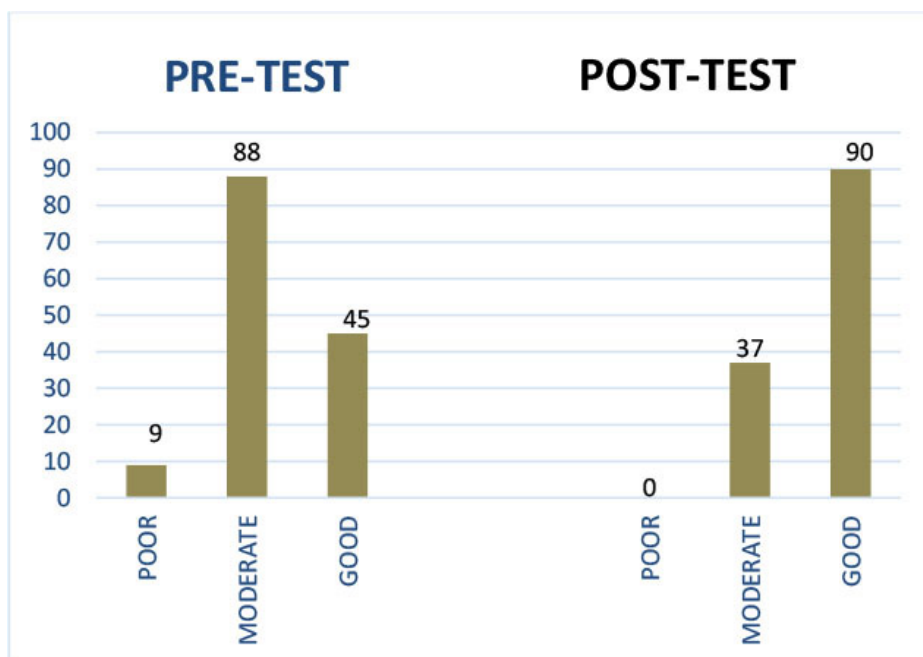
Unfortunately, in 2020, WHO announced COVID-19 as a pandemic, including Indonesia. The protocol to prevent the spread of COVID-19, including social distancing to reduce individual interactions, halts many forms of interactional events. Health promotions are usually conducted through seminars and trainings given directly to health providers. During the COVID-19 pandemic, webinars are the media expected to help deliver counseling and training materials effectively without having to meet face-to-face with the participants.

Technology allows connecting with various participants to deliver education and information. Telemedicine has been described as a telecommunication method used to discuss health education information and even provide care, negating the need to relocate educators, health professionals, and even patients.^{15,16} Webinar is a type of telemedicine used to transfer online information or educational seminars, with the chance to communicate with the trainers and other contributors using online interactive technology.¹⁵ Online counseling and training through webinars are also effective and can be followed by many participants across the area and province. Online lectures or online seminars (webinar) are currently becoming popular. The benefits of webinars are multiple speakers, many target access, collaborations, independence of location, the interactive nature, and the chance to give immediate feedback.¹⁷ In this study report, the internet is used as a particular source of technology for webinars for training healthcare providers to increase their information with exponential growth in knowledge.^{13,14}

Methods used to monitor the knowledge gained by participants after the online meeting is conducting pre- and post-test. The pre- and post-test methods are highly recommended and have become essential methods of assessment to measure the level of success and progress of a learning process. Pre- and post-test are important

Table 2. The characteristics of the samples

Characteristic	Number	%
General practitioners group		
Gender		
Female	87	72.5%
Male	33	27.5%
Age (years)	30 (24 - 67)	
Educational background		
General practitioner	84	70%
Dermatovenerologist	5	4.1%
Master degree	7	5.8%
Nurse and health care provider group		
Gender		
Female	54	83%
Male	11	17%
Age (years)	44 (25 - 73)	
Educational background		
Elementary school	2	3%
Junior high school	4	6%
Senior high school	14	21.5%
Diploma	21	32.3%
Bachelor degree	13	20%
Master degree	1	1.5%

**Figure 1.** Comparison of pre- and post-test scores from general practitioner (group 1).

assessment methods that directly and effectively evaluate training. Potential bias could be reduced if pre and post-tests were held directly after the lecture.

The success of this program can be seen from the increase in participants' pre- and post-test scores, which shows how the program was successful in increasing participants' knowledge and understanding of leprosy.¹⁸ An Indonesian study by Habib et al.¹¹ applied the Awareness Index

Patients to evaluate patients' knowledge about leprosy, showing an increase in post-test scores after training compared to the pre-test score. In that study, there was a 68% increase in knowledge after the health education program was conducted. According to these last studies, our study also showed a similar increase. In our study, there was an increase of 14 points for general practitioner group and 18 in nurse and health care group. The post-

test score increase in nurses and health care providers group are higher than in the general practitioners group. It showed that nurses and health care providers need more training and workshop. Different education background of participants in nurses and health care providers group can be considered as the reason why the increasing point were only 18 points.

In an excellent online course, both lecturer and participant should have seamless access to the course, making network quality play an important role. Good technology also influences the effectiveness and interactivity of online delivery since technology that allows both synchronous and asynchronous communication and didactical elements (text, audio, graphics, and video) could affect the quality of online meetings.¹⁹ The limitation of our online meeting was not being able to provide asynchronous videos for participants, hindering them from repeating our lectures at different times. The duration of each lecture in our online meeting was 15 minutes. It was suitable according to the study by Bradbury, which stated that a lecture duration should last no more than 10-15 minutes to maintain the limit point of the student's attention period.²⁰ To overcome this situation, lecturers can make interactive videos so participants can review the lectures at different times. Interactive videos can also be distributed to more participants who cannot join that webinar.

Participants' knowledge in an online class should be assessed periodically. Multiple methods including presentation, projects, assignments, tests, and emails, can perform the evaluation. Instructors should also evaluate the effectiveness of their instructional methods and lectures by monitoring their participants through online observation, discussion, feedback forms, or other methods.²¹ In our program, participants' knowledge was evaluated in a workshop session where a group of participants presented and discussed their patient with the supervisor. To maintain health providers' knowledge and retain community empowerment, we can perform reevaluation to increase detection and coverage of leprosy management programs.

Regarding the questions most

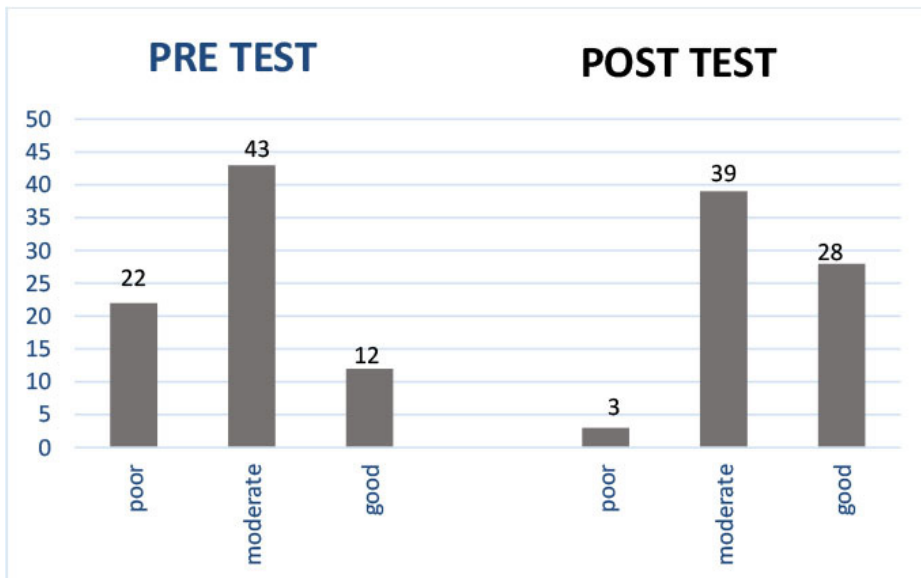


Figure 2. Comparison of pre- and post-test scores from nurses and health care providers (group 2).

participants answered incorrectly, they must be dealt with in more detail in the next online courses. This online health promotion should be done regularly, and we propose conducting it in larger communities to reach more healthcare providers and more remote areas. From this meeting, we hope general practitioners, nurses, and other healthcare providers in Malang, where we started this program, can manage leprosy patients more comprehensively.

CONCLUSION

Disabilities caused by leprosy can affect the quality of life. Health education has an essential effect on the knowledge of healthcare providers. Health promotion should be conducted to raise awareness about leprosy and prevent the disability. In a pandemic situation, online seminars can be chosen as an effective method for health promotion to increase healthcare providers' knowledge. Specific approaches to the related stakeholders should be conducted to organize this webinar that could hopefully increase healthcare providers' knowledge and experience regarding the periodic management of leprosy in every part of Indonesia.

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CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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