



Socialization of education the manufacture of hygiene and health products as a preventive efforts covid-19

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Abstract

The spread of Covid-19 can occur through transmission that occurs through droplets from the nose or mouth of someone who is infected with Covid-19. Indirect transmission occurs due to the fall of a splash, a person who touches the object or surface will be infected by touching the eyes, nose, or mouth. The lack of public hand washing facilities as well as public knowledge about making liquid soap, hand sanitizer and how to wash hands as well as making disinfectants and spraying methods that are good and correct in Samirono hamlet is one of the factors that spreads the risk of spreading Covid-19. The method of communication and education are through social media, namely Youtube and Whatsapp Group. The service program that was formed was to collect data on Samirono residents who were exposed to Covid-19.

Key words: *COVID-19; service; prevention.*

INTRODUCTION

There were more than 3,145 confirmed cases of Covid-19 in 2021 with 3.3% of deaths. The spread of Covid-19 can occurs through transmission that occurs through droplets from the nose or mouth of someone who is infected with Covid-19 when breathing, sneezing, or coughing. These droplets can enter the body directly, namely the inhalation of droplets from an infected person. Indirect transmission occurs due to the fall of splashes from the patient and stick to the surface of objects around the patient. A person who touches the object or surface will be infected if it touches the eyes, nose, or mouth (Athena et al., 2020).

The lack of public knowledge about the importance of maintaining personal and environmental hygiene is also one of the factors that spreads the risk of being exposed to Covid-19. One way to break the chain of spread of Covid-19 is to wash hands properly and properly using soap and water and use Hand Sanitizer as well as spraying disinfectant into the area where you live or where you have touched it. According to Setyasaputra (2021), the way to break the chain of spread of Covid-19 is to adhere to and adhere to the 3M (washing hands, wearing masks, and

maintaining distance) and 3T (Testing, Tracing, Treatment) properly.

The manufacture of liquid soap, hand sanitizer, and disinfectants as well as how to wash hands properly and spraying disinfectants need to be properly educated to the public. Disinfectant liquid soap should not be made carelessly and must comply with existing regulatory standards. In line with the Covid-19 pandemic, which has not ended and has been confirmed by Samirono village residents who have been confirmed positive for Covid-19. In addition, the lack of public hand washing facilities with the provision of hygiene and health products, namely liquid soap, hand sanitizer and disinfectants as well as knowledge of how to make liquid soap, hand sanitizer and disinfectant in Samirono village. With this, the Covid-19 Service and Prevention program was held. This program is expected to be able to provide knowledge to the community about the importance of maintaining personal and environmental hygiene as well as being able to empower the residents of Samirono Village to prevent and stop the spread of Covid-19.

EMPOWERMENT METHOD

Data collection activities for residents exposed to Covid-19 use the communication method with village heads regarding the number and houses of residents exposed to Covid-19.

Educational activities for Covid-19 prevention, Vaccines, and Independent Isolation use the online socialization-education method using the Youtube application which is then distributed to the Whatsapp Group of Samirono villagers. In addition, education was also carried out by distributing posters with related themes in public places in Samirono village.

The research method in the activity of making liquid soap products used is the experimental method. The tools used are 500 ml beaker glass, digital scales, stoves, pans, gloves, dropper and stirrer. The raw materials used in making this liquid soap are 570 grams of aquadest, 450 grams of coconut oil, 159 grams of olive oil, 190 grams of KOH base. In the manufacture of hand sanitizer, experimental methods are used by following WHO rules. The tools used are beakers and stirrer then the materials used to make 1 liter of Hand Sanitizer are 833 ml 96% alcohol, 41.7 ml hydrogen peroxide (H₂O₂) 3%, 14.5 ml glycerol 98%, and Aquadest. For the manufacture of disinfectants, experimental methods are used with sources derived from articles taken from LIPI by following the manufacturing rules from WHO. The ingredients used are dettol antiseptic liquid and water, an additional action for this product is a dilution method that is adjusted to the rules that have been set. For the manufacture of disinfectants derived from article sources taken from LIPI by following the manufacturing rules from WHO, additional measures for this product are dilution methods that are adjusted to the rules that have been set. For the activity of making video tutorials for making liquid soap and disinfectant products, socialization methods, tutorials, training or demonstrations, hands-on practice and video tutorials were used, then uploaded on the Youtube channel and distributed to the Whatsapp Group of Samirono village residents. For education on how to wash hands properly and correctly, the method of making posters is used which is then

pasted in the area where the hands are washed. For the activity of spraying disinfectants, a spraying method is used which is carried out throughout the Samirono village neighborhood in public places or residents' residences, especially the homes of residents affected by COVID-19 in coordination with local village officials.

RESULTS AND DISCUSSION

1. Covid-19 Service Program

The Covid-19 Service Program is a program carried out to provide services in the form of helping people affected by Covid-19. This activity was carried out on July 15 and 29, 2021, what was done was collecting data on Samirono village residents who were exposed to Covid-19 by directly asking the Head of head of village about the number of residents exposed to Covid-19. And data obtained from residents who were exposed to Covid-19 were 15 residents.

2. COVID-19 Service Program

The COVID-19 Prevention Program is a program carried out to educate residents and invite residents to prevent, reduce and stop the chain of spreading COVID-19. In the COVID-19 prevention program, there are two flagship programs carried out, namely the manufacture of liquid soap and disinfectants which include:

2.1. Covid-19 socialization: Covid-19 prevention, vaccine movement, and self-isolation

During the Covid-19 prevention socialization activity, a video was taken regarding how to prevent Covid-19. With contents, namely:

1. Wearing a mask

Masks can protect yourself from the possibility of being exposed to Covid-19. Masks will prevent the entry of saliva and phlegm from other people when coughing, sneezing, or talking so that we do not catch or transmit the virus to others. The best way to wear a mask is to (1) clean your hands first with soap or hand sanitizer. (2) Wear the mask slowly without touching the inside of the mask and make sure the mask covers the mouth, nose and chin tightly. (3) touch the mask when wearing. (4) Change the mask if

it is damp or wet. (4) The use of masks is a maximum of 4 hours.

2. Keep your distance and avoid

The goal is to keep the distance to slow the spread of Covid-19 by cutting off transmission and preventing the emergence of new distribution chains (World Health Organization, 2020). Droplets that come out when coughing, if without wearing a mask can slide up to 2 meters. When talking without a mask the aerosol can glide up to 2 meters. When sneezing without wearing a mask, droplets can glide up to 6 meters. By maintaining a safe distance of 2 meters so we can reduce the risk of contracting and transmitting by up to 85%.

During the socialization of the vaccine movement, a video was taken regarding the importance of vaccines and the types of vaccines. The vaccine movement is highly recommended for all levels of Indonesian society, especially Samirono residents. This is because vaccines function to reduce morbidity & mortality due to Covid-19, achieve herd immunity to prevent transmission, protect and strengthen the health system as a whole, and maintain productivity and minimize social and economic impacts (Marwan, 2021). The video is uploaded on the youtube channel and to reach deeper attention, we spread the youtube link on the whatsapp group of Samirono village so that the public can be well educated about the importance of vaccines for the wider community. The types of vaccines in Indonesia are:

- a. Sinovac, the emergency use permit has been granted by BPOM after reviewing the results of the Phase III vaccine clinical trial conducted in Bandung, resulting in the Sinovac efficacy of 65.3%
- b. Pfizer-BioNTech, used at the age of 16 years and over, the results of the analysis in the United States this vaccine has an efficacy of 95%
- c. AstraZeneca, this vaccine developed by AstraZeneca and the University of Oxford has an efficacy of 62.1%
- d. Moderna, the efficacy of this vaccine is 94.1% in the 18-65 year age group, for

those aged over 65 years, the efficacy will decrease to 86.4%

- e. Novavax, this vaccine is made using a spike protein made to mimic the natural spike in the coronavirus, the vaccine's efficacy is 96%
- f. Bio Farma, this vaccine is derived from vaccine raw materials that have been delivered in stages by Sinovac (Satuan Tugas Penanganan COVID-19, 2021).

During the self-isolation socialization activity, a video was taken regarding what to do if self-isolation and how to avoid COVID-19. The video is uploaded on the youtube channel and to reach deeper attention, we spread it on whatsapp group Samirono village so that people can be educated on the importance of taking care of themselves. In the video, it is explained that self-isolation is an effort to prevent the spread of COVID-19 by staying at home and monitoring one's condition while maintaining a safe distance from people around or family.

How to maintain the body's defenses during self-isolation is to continue to apply a healthy lifestyle, including eating a balanced nutritious diet, drinking vitamin C and supplements, multiplying fruits and vegetables, getting enough rest, doing light exercise and avoiding smoking or drinking alcohol. In addition, continue to monitor oxygen saturation and breathing (Kemenkes, 2020). An explanation related to the prevention of transmission of COVID-19 needs to be done by implementing well and tutorials from 3M (washing hands, wearing masks, and maintaining distance) and 3T (Testing, Terracing, and Treatment) (Setyasaputra, 2021).

2.2. Making and distributing posters about Covid-19

The poster was created with the aim of disseminating information about the importance of vaccines, with the title "Protect Yourself and Family from Covid-19". Vaccination is very important as an effort to maintain the health of yourself and your family, the government guarantees that the vaccines used are in accordance with safety standards and have passed clinical trials. If we as a person are in self-isolation with content taken from World Health Organization (WHO) sources,

namely self-quarantine procedures during Covid-19 which are recommended for individuals who are directly exposed to the new Covid-19 virus or who have a history of travel in infected areas or densely populated, namely:

1. Stay home, limit all non-essential travel
2. Check your temperature, check your temperature at least twice a day
3. Wash your hands, apply good hand hygiene by washing hands with soap and water, alcohol, or hand sanitizer
4. Stay in a special room, if you are sick or suspect you are sick, you should stay in a special room or area away from other people
5. Be aware of other symptoms, besides fever, Covid-19 symptoms include coughing, shortness of breath, and fatigue
6. Implement social restrictions, if you have to go out then keep a distance of at least 1 meter from other people
7. Contact the doctor or hospital before visiting, if you need medical help either for virus symptoms or other medical treatment reasons

Posters were created using Corel Draw and Canva applications which were then printed on A3 size paper. Posters were distributed and posted in public places where all ordinary people passed by.

2.3. Liquid Soap Making

Soap is a cleanser made by a chemical reaction between potassium or sodium with fatty acids from vegetable oils or animal fats. Coconut oil is one of the raw materials for soap that can be used, based on its fatty acid content, coconut oil has a high acid content of solution. Lauric acid ($C_{12}H_{24}O_2$) belongs to the type of medium chain fatty acids (medium chains tryglicherides).

Lauric acid is able to provide excellent foaming properties, and lauric acid is efficacious as a natural antimicrobial, so coconut oil can be used as a raw material for soap (Gani et al., 2005).

Soap is a substance that contains two groups: a hydrophilic group (the head part of the soap molecule) and a hydrophobic group (the tail part of the soap molecule). The hydrophilic

group is the part that can interact with water. While the hydrophobic group will interact with fats (lipids). With such a composition, soap can damage the outer structure of the virus in the form of proteins and lipids (fats) (Widyasanti, 2019).

WHO has determined that washing hands with soap and water is a preventive measure in reducing the possibility of spreading the virus. The mechanism of soap in killing germs and removing viruses is based on the mechanism of breaking the viral membrane, simple elution, and viral capture (Chaudhary et al., 2020). Hand washing is a preventive activity that can be done easily and independently. Washing hands with soap and running water for at least 20 seconds can reduce the risk of contracting the virus by up to 35%.

The step of making liquid soap begins by heating coconut oil and olive oil to a boil, stirring evenly to a temperature of 70 °C. Mix aquadest and KOH base and stir until combined. Add the KOH base solution to the heated oil solution, stir until thickened and a semi-finished liquid soap is obtained. Heat the aquadest solution and add the semi-finished soap solution in a ratio of 1:1, remove the foam that is above the soap solution then mix thoroughly and cool. After letting it sit for a few days, it produces liquid soap with a thick cloudy white color, when applied to the hands it does not cause itching, does not leave rough on the hands, is rough, and produces a little foam.



Figure 1. Result of making liquid soap

In educating residents to wash their hands using soap that flows properly and properly, a poster entitled "6 Steps to Through Hand

Washing" was made which was then affixed to the hand washing area, with contents:

1. Wet your hands with clean water
2. Lather your hands by rubbing it with soap
3. Scrubs your hands in between your fingers and under your nails for at least 20 seconds
4. Rinse your hands under clean running water
5. Dry your hands using a clean towel or tissue, you can also air-dry them
6. Repeat, wash your hands as often as necessary, especially before and after handling food

2.4. *Manufacture of Hand Sanitizer Products*

Hand sanitizer is a hand sanitizer that contains antibacterial properties that function as an inhibitor and kill bacteria (Retnosari & Isadiartuti, 2006). Hand sanitizer in the form of a spray or liquid is more effective than hand sanitizer gel in eliminating germs and bacteria on hands (Diana, 2012).

Hand Sanitizer with alcohol as an active ingredient where alcohol with a concentration of 60-80 percent is quite effective in killing most bacteria, fungi or viruses by denaturing proteins in these microorganisms (Daniel Hernandez, 2004). In addition, alcohol-based hand sanitizer products tend to be preferred because they require faster time (Pickering et al., 2011).

The manufacture of Hand Sanitizer uses 96% alcohol as the main ingredient. In addition to 833 ml of 96% alcohol there is also 41.7 ml of hydrogen peroxide (H_2O_2) 3% which acts as an anti-microbial, mix and stir evenly the alcohol and hydrogen peroxide then add 14.5 glycerol which acts as a softener when applied to the hands, add aquadest up to a solution volume of 1000 ml or 1 liter, if there is no aquadest, plain water that has been previously boiled can be used to minimize microbial contamination in the water. The addition of low concentrations of H_2O_2 to the Hand Sanitizer is useful for removing spores that contaminate the solution in the hand sanitizer. Glycerol is used as a humectant because glycerol is a hygroscopic component that can bind water. Glycerol can moisturize the skin in high

humidity conditions (Ramlah, 2017). It can be seen that the hand sanitizer produced is in liquid form with a clear white color, when applied to the hands it does not cause itching and smells good.



Figure 2. Result of making hand sanitizer

2.5. *Manufacture of Disinfectant Products*

Common household disinfectants, including diluted soap or bleach, can inactivate the coronavirus on indoor surfaces. Corona virus is a virus that has a envelope or cover (enveloped virus) with a protective layer of fat. Disinfectants can damage the fat layer, thus making the corona virus "quite weak" compared to norovirus which is a non-enveloped virus (virus without an envelope) and other viruses that have a stronger protein shell [8].

Judging from the lack of health products that support reducing the risk of the spread of COVID-19 and the lack of products and the lack of knowledge about the manufacture and proper and correct way of spraying disinfectants, we took the initiative to make these health products. Disinfection is the process of reducing the number of microorganisms to a lower hazard level on surfaces indicated by contamination by microorganisms by using materials (disinfectants) that can function to control, prevent, and even destroy harmful microorganisms (Occupational Safety and Health Branch, 2007).

The active ingredients for the manufacture of disinfectants include Accelerated hydrogen peroxide (0.5%), Benzalkonium chloride / quaternary ammonium / alkyl dimethyl benzyl ammonium chloride (0.05%), Chloroxylenol (0.12%), ethanol (62-71%), Iodine in iodophor (50 ppm), Isopropanol or 2-propanol (50%), Pine oil (0.23%), Povidone-iodine (1% iodine), Sodium hypochlorite (0.05 – 0.5%), Sodium chlorite (0.23%), Sodium dichloroisocyanurate (0.10.5%) (LIPI, 2020).

Calculations according to the WHO method of making a disinfectant with 1 liter of water and dettol antiseptic liquid which has an active ingredient of chloroxylenol 4.8%, the ratio between water and dettol is 40:1 so that for a dose of 1 liter of water, 45 ml of dettol antiseptic liquid is obtained. The disinfectant produced is in the form of a liquid and cloudy in color with a distinctive odor of dettol antiseptic.



Figure 3. Result of making disinfectant

2.6. Making a Video Tutorial

Making a tutorial video on making liquid soap, handsanitizer, and disinfectant made using power point which is then exported in mp4 format. Then it is uploaded to the YouTube channel so that it can be disseminated to Samirono residents in the form of a link or to YouTube users who need an easy way to make liquid soap and disinfectant.

2.7. Spraying a Disinfectant

After finishing the manufacture of disinfectant products, disinfectant spraying activities were carried out in residential areas, especially homes exposed to COVID-19 and

public places in Samirono village such as mosques, cultural halls, mosque porches and al-qur'an education parks. Before spraying, you should first disinfect the place to be sprayed. It aims to maintain the sanitation and environmental health of Samirono Hamlet residents. The things that need to be considered when using disinfectants are:

1. Check the label and use the product according to the instructions and be aware of the potential hazards of each disinfectant product.
2. Avoid contact with eyes and skin when using cleaning products and keep out of reach of children.
3. Do not carelessly mix different cleaning products and carry out disinfection in a well-ventilated place.
4. For disinfection of highly contaminated areas, it is recommended that the surface be disinfected using a cloth that has been moistened with the solution disinfectant and do not spray directly on highly contaminated surfaces, as this can spread the virus into the air.

CONCLUSIONS

The COVID-19 service program that was formed was a data collection of Samirono hamlet residents who were exposed to COVID-19, data obtained were 15 people exposed to COVID-19. The COVID-19 prevention socialization program, the vaccine movement, and self-isolation were made in the form of a video uploaded to the Youtube channel which was then shared with a video link to the Whatssap Group in Samirono village, apart from being in the form of a video, there was also socialization in the form of a poster which was then pasted in public places. . Making liquid soap using coconut oil as a base produces thick liquid soap with a cloudy white color. Making Hand Sanitizer with 96% alcohol base and 3% hydrogen peroxide produces a liquid Hand Sanitizer with a clear white color. Manufacture of disinfectant with liquid antiseptic dettol according to WHO rules, which is 25 ml in 1 liter of water. Application of disinfectant by spraying on a previously disinfected surface using a wet cloth.

AUTHORS' CONTRIBUTIONS

The author contributes to the preparation and implementation of community service activities in Samirono village starting from finding sources, making products, making videos, publishing and distributing products

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