

THE EFFECTIVENESS OF USING HAND SANITIZER WITH HAND HYGIENE USING SOAP TO PREVENT COVID-19: A LITERATURE REVIEW

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Abstract

Hand hygiene is the process of removing dirt from the hands. Hands are one of the transmission media for Covid-19 because hand contact is more frequent besides almost all activities that require hands so hand hygiene is very important, the strategy in dealing with Covid-19 is the main increase in infectious diseases in the problem of breaking the chain of spread of Covid-19 by perform hand hygiene.

Knowing about the effectiveness of using hand sanitizers with hand hygiene using Covid-19 prevention soap through a literature review.

Literature review method. Journal criteria are filtered based on literature titles, abstracts and keywords that are determined and sourced from Pubmed and Google Scholar, which are determined through approach, determination, selection. The number of articles used for this literature research is 11 journals.

The effectiveness of hand hygiene between hand sanitizer and hand hygiene using Covid-19 prevention soap has the same role, where the use of both is equally effective.

The use of hand sanitizer with hand hygiene using soap is equally effective, the same role, there is no water and soap so use hand sanitizer unless hands are dirty, you can't use hand sanitizer but use soap, the rise of Covid-19 is one way to prevent the spread of Covid-19 19 is hand hygiene.

Keywords: Covid-19, Effectiveness, hand sanitizer, cleanliness, soap

Introduction

The Covid-19 disease that occurred in 2019 was a contagious disease and caused many deaths and current morbidity (Zendrato, 2020). According to the 2020 World Health Organization (WHO) data, it reported 11,84,226 confirmed cases with 545,481 deaths worldwide (Case Fatality Rate/CFR 4.6%). In Indonesia, reported cases on March 2, 2020, cases increased and spread rapidly throughout Indonesia. Until July 9, 2020, the Ministry of Health reported 70,736

confirmed cases of Covid-19 with 3,417 cases of death (CFR 4.8%) (Task Force for the Acceleration of Handling COVID-19). 19, 2020). Meanwhile, in South Kalimantan Province, especially in Banjarmasin City, as of May 31, 2020, there were 918 positive cases of Covid-19, 738 people were treated, 99 people recovered, 81 people died, the death rate was 8.8%, the recovery rate was 10.8% (*Infeksi Emerging Kementerian Kesehatan RI*, n.d.).

Strategies in controlling and preventing the spread of responding to the rise of Covid-19 disease, the transmission of the Covid-19 disease, steps for prevention have also been carried out by the government to overcome cases of the spread of Covid-19 such as disseminating the 5M health protocol, namely the application of wearing masks, maintaining distance, hand hygiene, avoiding crowds and reducing mobility (*Mengenal Protokol Kesehatan 5M Untuk Cegah COVID-19*, n.d.). Hands are one of the media for transmission of Covid-19 because of more frequent hand contact, almost all activities require hands, so hand hygiene is very important in order to minimize the transmission of Covid-2019 (Adnan et al., 2020).

The use of hand sanitizers is ineffective if used when hands are dirty, used excessively and continuously can be dangerous and cause irritation to cause burning on the skin (Asngad et al., 2018).

The mechanism of soap to damage the Covid-19 membrane using soap and running water makes the virus critically inactive, the virus does not yet have a strong chemical bond that can unite this unit so it does not require harsh chemicals to make these units separate when all infected cells die. the virus wrapped in the virus will split and be killed and then running water will rinse the remnants of the virus that has been broken by the soap (Nakoe et al., 2020).

Materials and Methods

Methods This research uses a literature review method. Journal criteria are filtered based on literature titles, abstracts and keywords or keywords that have been determined and sourced from Pubmed and Google Scholar, which are defined through the approach, filtering, eligibility, selected. The number of articles used for this research literature is 11 journals. The process of collecting various literatures using accredited journal sites such as Google Scholar and Pubmed using the keywords covid-19, Effectiveness, hand sanitizer, soap, hand washing covid-19, The criteria for selecting literature are as follows:

1. Inclusion Criteria

- a. The literature sources taken are the last 5 years between 2016 and 2020
- b. The literature used is full text

- c. Literature with free access
- d. The journals used are in English and Indonesian
- e. The suitability of keywords and results from the journal
2. Exclusion Criteria
 - a. Unpublished articles in the form of non-original publications such as letters to editors, abstracts only, books, and journals that differ between two journal searches.
 - b. Articles have similar data reported in other articles.

Table 1: Literature Review Stages

Data Based		Source
Google Scholar	(n=512)	(n=7)
Pubmed	(n=266)	(=4)
Total	778	11

Results and Discussion

Hand hygiene is one of the sanitation measures by cleaning hands and fingers Hand hygiene is very important because it can be easily contaminated from direct contact with droplets of microorganisms in the air from coughing, sneezing or through objects, especially in situations such as a pandemic it is very important to break the transmission

Based on the results of discussions and journal searches, it can be concluded that treatment diabetic foot ulcer patients are expected to not only focus on fulfillment and physical care but also pay attention to aspects of the patient's spiritual needs and the emotional condition of diabetic foot ulcer patients virus with proper hand sanitation practices (Jing et al., 2020).

1. Effectiveness of Hand Sanitizer for Covid-19 Prevention

Hand sanitizer is an effective measure to reduce or minimize the potential for contracting the COVID-19 virus. The effectiveness of hand sanitizers in killing germs on hands is obtained by using an effective hand sanitizer Alcohol content 60-90%, benzalikonium chloride, benzetonium chloride, chlorhexidine, gluconate, chloroxynol, clofucarang, hexachlorophene, hexylresocarcinol, iodine and iodophors, and triclosan. Hand sanitizers with alcohol content between 60-90% can change the nature of microbial proteins and the

ability to inactivate viruses and have good anti-microbial effects using hand sanitizers (Wijayanto et al., 2021).

2. Effectiveness of Hand Hygiene Using Covid-19 Prevention Soap

The secret of soap's impressive power is its hybrid structure, soap is composed of molecules that are shaped like pins, each molecule has a hydrophilic head and can mix with water while the hydrophobic tail can't mix with water, but can only combine with oils and fats, when the molecules the molecules are suspended in water then the molecules will alternately float grouping. These molecules can be linked with other molecules in solution and form small bubbles called micelles (Nakoe et al., 2020).

3. Effectiveness of Hand Sanitizer with Hand Hygiene Using Covid-19 Prevention Soap

Effectiveness for preventing Covid-19 by using hand sanitizer and using soap are two equally effective ways to prevent covid-19 disease, only if hand hygiene using hand sanitizer is effective when hands do not look dirty but if hands looks dirty hand hygiene using soap and running water because it is very effective to prevent the corona virus disease chain (Wijayanto et al., 2021).

The strategy in dealing with the Covid-19 disease is awareness in carrying out to break the chain of the spread of Covid-19 by doing hand hygiene because hand hygiene is important during the pandemic to prevent Covid-19 disease (dewi et al., 2018).

Based on the results of the study saying that the difference in the effectiveness of using hand sanitizers with hand hygiene using Covid-19 preventive soap, the results of the study show that hand sanitizers can clean hands that contain 60-80% alcohol the mechanism of soap destroys the Covid-19 virus membrane, soap can make the lipid membrane dissolve, this makes the virus inactive. Cleaning hands with water and soap, the level of effectiveness in removing bacteria on hands can be different, if only washed with water only a few bacteria will come out, while soap can remove a lot of bacteria because in soap there are special ingredients that can control the bacteria on the hands, (Nakoe et al., 2020).

Previous research on the comparison of the effectiveness of hand sanitizers compared to hand hygiene using soap at FK University of North Sumatra, it was found that there was a significant difference between the effectiveness of using hand sanitizers and soap in reducing the number of bacteria on hands ($p = 0.039$), hand hygiene using soap in value more effective . In line with (Cordita et al., 2019) it is stated that the effectiveness of reducing the number of germs in hand hygiene using hand sanitizer is 60% and hand hygiene soap using antiseptic soap is more effective than hand hygiene using hand sanitizer. Using the Wilcoxon test and unpaired T test with $\alpha = 0.05$ CI = 95%, there was a difference in the number of germs before and after hand

cleaning using hand sanitizer ($p = 0.001$) and antiseptic soap ($p = 0.001$) there was a difference in the percentage decrease in the number of Germ counts in hand hygiene treatment using hand sanitizer with antiseptic soap ($p=0.041$), hand hygiene using antiseptic soap occurred because triclosan had an antimicrobial effect by inhibiting the enoyl ACP-reductase essential enzyme which was effective at 0.2-2% levels so that could According to (Pandie et al., 2020) stated the results of previous research showed that using antiseptic soap in hand hygiene was considered more effective in reducing the number of germs on hands, the percentage decreased when doing hand hygiene by 73%, while other studies showed that the effectiveness of hand sanitizers that had an alcohol content of 60-80% more effective

The virus that is responsible for the current global pandemic, Covid-19 because this virus is so little known about infection, Benzalkonium chloride hand hygiene can be used as an effective alternative to alcohol-based, which can help reduce deficiencies in Covid-19, (Ogilvie et al., 2021).

In hand sanitizers containing soap and water and their role in the Covid-19 pandemic is very important, the correct and effective use of disinfectants is hand hygiene and hand hygiene using soap and water, during a pandemic one of the easiest hand hygiene is very important in preventing the spread of Covid-19 (Roy et al., 2020).

Two research results from (Widiawati et al., 2020), (Abil Rudi, 2020), Hand hygiene using soap and running water, the efforts taken to prevent Covid-19 have been set by WHO, six steps of correct hand hygiene: (1) pouring hand wash on the palms then rubbing and rubbing the palms in a circular direction, (2) rubbing and rubbing the backs of the hands alternately, (3) rubbing between the hands until clean, (4) cleaning the fingertips alternately interlocking positions, (5) rubbing and rotate the two thumbs alternately, (6) put the fingertips into the palm of the hand then rub slowly. giving positive results to the community in the context of preventing Covid-19, hand hygiene with soap that is practiced correctly and correctly is the easiest and most effective way. In line with research conducted by (Lestari et al., 2020) human-to-human transmission through droplets, contact with contaminated objects, the transmission of Covid-19 is estimated at the standard recommendations to prevent the spread of infection through hand hygiene.

Research conducted by (Jing et al., 2020) that effective hand sanitizers contain alcohol 60-80% alcohol because they can change the nature of microbial proteins and the ability to inactivate viruses, hand sanitizers require a little time to use about 2.5-3 ml of liquid. rubbed on all surfaces of the hands with the six steps of hand hygiene recommended by WHO for 30 seconds. In line with (Setyansah et al., 2021) Awareness in the community of the importance of maintaining cleanliness, one of which is maintaining hand hygiene and being able to break the

chain of the spread of Covid-19, raising awareness and getting used to cleaning hands, which is very important so as not to transmit disease between humans and humans. others because the hands are the part of the body that is the easiest to carry germs because the hands are used to shake hands or hold an item so that the hands can be said to be the most easily contaminated part of the body.

Based on research by (Assefa et al., 2021) most of the use of hand sanitizers experience different health risks, generally dry skin, skin irritation, bad taste, eye irritation and others.

Conclusion

The use of hand sanitizers with hand hygiene using soap is equally effective, the same role, there is no water and soap then use a hand sanitizer unless dirty hands cannot use hand sanitizer but use soap, in response to the rise of Covid-19 this disease is one of the One way to prevent the spread of Covid-19 is to practice hand hygiene.

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Declaration of Interest Statement

The authors declare that they have no conflict of interests.

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