

Perbedaan Jumlah Koloni Bakteri Pada Tangan Sebelum dan Sesudah Cuci Tangan Menggunakan Sabun

Difference Total Colony Bacteria On Hand Before and After Wash Hands Use Soap

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INTISARI

Tangan adalah vektor dari bakteri penyebab penyakit yang dapat menyebar dari satu orang ke orang lain melalui kontak langsung atau tidak langsung. Bakteri pada tangan kita dapat dihilangkan jika kita mencuci tangan dengan sabun. Tujuan dari penelitian ini adalah untuk menganalisis perbedaan jumlah koloni bakteri pada tangan sebelum dan setelah dicuci dengan sabun di Student Health Analyst of STIKes Ngudia Husada Madura. Metode penelitian yang digunakan adalah kuantitatif, dan desain penelitian menggunakan pretest-posttest dengan kelompok kontrol. Variabel penelitian ini adalah jumlah koloni bakteri yang terdapat dalam media menggunakan metode pour plate. Sampel yang digunakan adalah 16 sampel dengan total populasi 53 responden. Penelitian ini dilakukan di Laboratorium Mikrobiologi STIKes Ngudia Husada Madura. Hasil yang diperoleh dari penelitian ini menunjukkan adanya perbedaan yang signifikan dalam penurunan jumlah koloni bakteri pada tangan sebelum dan setelah mencuci tangan dengan sabun, dengan hasil analisis data menggunakan uji Wilcoxon menunjukkan nilai signifikansi sebesar 0,000. Oleh karena itu, mencuci tangan dengan sabun dapat mengurangi jumlah bakteri yang ditemukan pada tangan, dengan rata-rata koloni pada saat sebelum mencuci tangan sebanyak $201,9375 \times 10^4$ koloni/ml sementara setelah mencuci tangan menjadi 93.0625×10^4 koloni/ml.

Kata kunci: Mencuci Tangan, Menghitung Jumlah Koloni, Sabun, ALT

ABSTRACT

Hands are vectors of disease-causing bacteria that can cause migration from one person to another or direct or indirect contact. The bacteria on our hands can be removed if we wash our hands with soap. The purpose of this study was to analyze the difference in the number of bacterial colonies on the hands before and after washing them with soap on the Student Health Analyst of STIKes Ngudia Husada Madura. The research method used is quantitative, and the research design used a pretest-posttest with a control group. The variable of this research was the number of bacterial colonies contained in the media using the pour plate method. The sample used is 16 samples with a total population of 53 respondents. This research was conducted at the Microbiology Laboratory of STIKes Ngudia Husada Madura. The results obtained from this study indicate that there was a significant difference in the decrease in the number of bacterial colonies on hands before and after washing hands with soap, with the results of data analysis using Wilcoxon showing a significance value of 0.000. Therefore, washing hands with soap can reduce the number of bacteria found on the hands, with an average colony at the time of before washing hands as much as $201,9375 \times 10^4$ colonies/ml while after washing hands is 93.0625×10^4 colonies/ml.

Keywords: Hand Washing, Count the Number of Colonies, Soap, ALT



PENDAHULUAN

Soap is tool which could clean the body especially on the hands from dirt as well as For dust that sticks to the surface of the skin, there are two types of soap that can be used, namely antiseptic soap which has anti-bacterial content which can reduce a number of harmful bacteria that are on the hands for a long time, and ordinary soap which can only get rid of bacteria for a short time (Cordita *et al.*, 2019).

Bacteria is group organism which do not have core cell and could where live just, bacteria shared Becomes two ie bacteria grams positive and bacteria grams negative (Holderman, 2017). Based on its classification, bacteria consist of single round cocci, pairs (diplococcus), and chain (streptococcus). Bacillus bacteria which have a shape like a rod or cylinder, and spirals have a curved curved shape like a spiral (Komalasari, 2020)

The most common bacteria found before and after washing hands with soap are gram-negative coccus bacteria. Soap has reached almost every house in Indonesia, but only about 3% wash their hands with soap, based on where they live, the habit of washing hands in urban communities is 55% while people in rural areas are 42.7%. (Norfai & Abdullah, 2018).

In rural communities, it is common to find the habit of eating with hands without a spoon, making it easier for germs to enter the body through contaminated hands. This happens because hands are vectors for carrying bacteria that cause disease and can cause migration from one person to another, or direct contact (such as shaking hands or touching the skin) or indirect (using other surfaces such as glasses, spoons or other cutlery). which can cause several diseases such as diarrhea, cholera, ISPA, and flu (Situmeang & Sembiring, 2019)

Bacteria that are on the hands can be removed if we wash our hands. Hand washing is one of the hygienic actions to clean hands and fingers, with the aim of cleaning hands and breaking the chain of bacteria (Pandie *et al.*, 2019).

METODE PENELITIAN

Materials and Equipment

The tools needed for this research are analytical balance, erlenmeyer, stir bar, hot plate, watch glass, petri dishes, autoclaves, sterile cotton swabs, test tubes, pipettes, colony counters. Materials needed PCA media, distilled water, 0.9% NaCl, label paper, soap.

Ethics Statement

This research was approved by the Research Ethics Committee of STIKes Ngudia Husada Madura. Informed consent was given to respondents at the time before conducting research with the aim that respondents understood the aims and objectives of the research..

Study population and design

The population used in this study were students majoring in health analysts at STIKes Ngudia Husada Madura. So in this study the sample used was 16 samples the hands of students majoring in health analysis at STIKes Ngudia Husada Madura which will be divided into 2 groups, namely the control group and the experimental group.

HASIL DAN PEMBAHASAN

NO Sampel	Jumlah Koloni Bakteri Pada Tangan Sebelum Dan Sesudah Cuci Tangan <u>Menggunakan Sabun</u>	
	sebelum	sesudah
1	3.000.000 CFU/ml	2.490.000 CFU/ml
2	1.020.000 CFU/ml	950.000 CFU/ml
3	1.850.000 CFU/ml	630.000 CFU/ml
4	990.000 CFU/ml	300.000 CFU/ml
5	2.850.000 CFU/ml	650.000 CFU/ml
6	1.980.000 CFU/ml	460.000 CFU/ml
7	2.330.000 CFU/ml	360.000 CFU/ml
8	2,650,000 CFU/ml	990,000 CFU/ml
9	1,450,000 CFU/ml	870.000 CFU/ml
10	2.460.000 CFU/ml	1.500.000 CFU/ml
11	2.730.000 CFU/ml	1.430.000 CFU/ml
12	850.000 CFU/ml	350.000 CFU/ml
13	1.600.000 CFU/ml	680.000 CFU/ml
14	3.000.000 CFU/ml	1.480.000 CFU/ml
15	2.790.000 CFU/ml	1.450.000 CFU/ml
16	760.000 CFU/ml	300.000 CFU/ml
Rata-rata	2.019.375 CFU/ml	930.625U/ml

Based on the research that has been done, the highest results were obtained before washing hand as much 300×10^4 colonies/ml, whereas results Lowest that is as much 76×10^4 colonies/ml, matter this because various activity daily which done by respondent, wrong only one is lecture that did in STIKes Ngudia Husada Madura i . Based on study done by Pohan (2020) obtained results with mark smallest that is 5 colonies/m³ and biggest that is 15 colonies/m³ on arrest bacteria in air as well as found exists Gram - positive and Streptobacilli bacteria Staphylococcus aureus on results swab handle door, matter this because handle door is wrong one thing which most frequently touched by users of the room.

Respondents asked to wash hand use soap with 7 step wash hands according to WHO recommendations. Washing hands performed with poured 1 ml of soap on palm hand which has moistened then rub second hand in accordance recommendation WHO after that rinsed using running water and dry hand During 40-60 second. Washing hand could remove dirt as well as contamination that caused by bacteria that are on the hands, because bacteria can live for hours on the hands if we don't wash our hands. Wash hand use soap with 7 step at least 40-60 second proven effective kill bacteria (Ministry of Health RI, 2020).

In the research that has been done obtained results highest on after washing hand obtained as much 249×10^4 colonies/ml and lowest as much as 30×10^4 colonies/ml, this is due to soap which is disinfectant which could kill or reduce total bacteria. Results study which has conducted by Sentosa & Hapsari (2019) obtained that there is difference mean on pre and post cleaning operating room with an average number of colonies pre cleaning on operating room is

32 CFU/ m³ whereas average post cleaning is 18 CFU/m³, p this show that disinfectant effective in killing bacteria as it is present difference total colony on moment before and after gift disinfectant on room.

The decrease in the number of bacterial colonies occurred because respondents used soap when washing their hands. Soap is a compound that can clean dirt and bacteria found on the surface of the skin, the soap used in this study is an antiseptic soap with several ingredients that can kill

bacteria, namely citric acid and salicylic acid, this is because some types of bacteria cannot survive with low pH. Salicylic acid can help open skin pores, remove excess oil that can clog the skin and bacteria that cause acne (Utama *et al.*, 2022). According to (Sabahannur, 2020) citric acid added to food products can lower the pH so that microbial growth is inhibited.

KESIMPULAN

The results of research conducted in the microbiology laboratory of the Ngudia Husada Madura STIKes Health Analyst Study Program showed that there were significant differences in the decrease in the number of bacterial colonies on the hands before and after washing hands with soap. The average number of colonies before washing hands was 201.9375×10^4 colonies/ml while after washing hands it was 93.0625×10^4 colonies/ml.

UCAPAN TERIMA KASIH

We would like to thank the support from the Ngudia Husada Madura STIKes Campus, Health Analyst Diploma Program, and respondents who are willing to help this research to completion. We also appreciate Editage for providing editorial assistance.

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