

RELATIONSHIP OF HYGIENE AND SANITATION WITH MICROBIOLOGICAL QUALITY OF DRINKING WATER DEPO WATER DURING THE COVID-19 PANDEMIC IN 2021 (In Dupak Village, Krembangan District, Surabaya City)

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RELATIONSHIP OF HYGIENE AND SANITATION WITH MICROBIOLOGICAL QUALITY OF
DRINKING WATER DEPO WATER DURING THE COVID-19 PANDEMIC IN 2021 (In Dupak
Village, Krembangan District, Surabaya City)

M. Lazuardhi Ilmi¹, Khambali², Demes Nurmayanti³

¹Department Of Environmental Health Polytechnic Ministry Health Surabaya,
Lazuardhi1@gmail.com

²Department Of Environmental Health Polytechnic Ministry Health Surabaya,
khambali2014@gmail.com

³Department Of Environmental Health Polytechnic Ministry Health Surabaya
Demes.setiawan@yahoo.com

ABSTRACT

Drinking water depots (DAM) in Dupak sub-district use Ultraviolet disinfection and 40% of depots do not meet the requirements. Good in sanitation including roofs in fragile locations and lots of cobwebs, Drinking water depots floors are dirty with lots of dust and close to garbage dumps, poor hygiene includes not wearing mask and many operators do not have certificates to take drinking water depots sanitation hygiene courses. The purpose of this study was to analyze the relationship between hygiene and sanitation with the microbiological quality of drinking water depots during the COVID-19 pandemic in Dupak Village, Krembangan District, Surabaya City. The type of research is an analytic observational study, using a cross sectional approach. This research method is an analytic observation study, using a cross sectional approach and Chi-square test. The number of samples studied were 10 drinking water depots, the causes or risks and consequences or cases that occurred in the research object were measured and collected simultaneously or at the same time, and data assessment obtained by direct observation, data analysis using SPSS version 2.0 with bivariate test by analyzing the relationship between variables to be studied. Data analysis using SPSS version 2.0 with bivariate test by analyzing the relationship between variables to be studied. The results showed that 80% of drinking water depots sanitation met the requirements and 80% of hygiene did not meet the requirements. There is no relationship between sanitation conditions and the microbiological quality of drinking water depots in Dupak sub-district ($p=1,000$) because drinking water depots sanitation in Dupak Village meets the requirements and from the results of research related to handler hygiene, there is no relationship between handler hygiene and microbiological quality of drinking water depots in Dupak Village ($p=1,000$) because the equipment in the drinking water depots has met the requirements. The microbiological quality of water in the drinking water depots in Dupak Village has no relationship with hygiene and sanitation. 80% meet the requirements in terms of sanitation, 80% do not meet the requirements in terms of hygiene, and 40% drinking water depots does not meet the requirements of water microbiological quality. People who use drinking water depots water are advised to reprocess or boil drinking water depots water before it is consumed for drinking purposes. This is to avoid diseases caused by the drinking water depots water, and also the handlers pay more attention to personal hygiene.

Keywords : Drinking Water Depot, Hygiene, Sanitation, Quality microbiology

INTRODUCTION

Drinking water is water that has been processed or without processing that meets the health requirements for drinking. Drinking Water Depot (DAM) is drinking water in bulk produced by home industry businesses through a raw water treatment process that meets health requirements and can be drunk directly. Procurement of clean water for drinking water needs must meet the requirements set by the government. Healthy drinking water based on Permenkes No. 492/MENKES/PER/2010 with the mandatory parameters for determining the

quality of drinking water in microbiology is total coliform and Escherichia coli with the maximum permissible level of 0 per 100 ml, which humans need safe drinking water and not contaminated by microbiology or disease-causing bacteria. . Not only microbiological parameters, physical parameters are also important in drinking water including odor, color, total dissolved solids (TDS), turbidity, taste and temperature. Sources of raw water can be taken from springs, Regional Drinking Water Company (PDAM), bore wells, dug wells and other sources that have been recommended by the Regency or City government.

Many people choose drinking water depots as drinking water because the price is cheaper than bottled drinking water (ADMK), it is also easy to obtain, and the level of practicality that does not need to be re-cooked makes people increasingly dependent on refilled water or the existence of drinking water depots. The presence of Drinking Water Depots (DAM) continues to increase in line with the dynamics of the community towards quality and safe drinking water for consumption. Even though it is cheaper, not all drinking water depots are guaranteed products, especially sanitation. One of the standards of cleanliness and water health is measured by the presence or absence of E. coli and Coliform bacteria as these indicators. The presence of these indicator microorganisms in water is evidence that the water is contaminated by feces from humans or animals and an opportunity for pathogenic microorganisms to enter the water (Mutiara, 2017).

Sanitation at the drinking water depot is very important, because if the sanitation conditions are lacking, it will affect the quality of the water produced by the drinking water depot. Many drinking water depots do not meet the requirements due to poor sanitation conditions. Hygiene and sanitation of drinking water depots is one of the efforts in the health sector to reduce the factors that make drinking water polluted and the processing, storage and distribution of drinking water (Selomo, 2018). According to data from the Dupak Health Center related to drinking water depots in Dupak Village in 2020 the sanitary conditions of drinking water depots in Dupak Village do not meet the requirements in terms of buildings that do not meet the requirements because they are dirty and have lots of cobwebs.

Hygiene in drinking water depots is also very important and influences the good and bad requirements of drinking water depots. 80% of drinking water depots do not meet the requirements. One of the problems is the behavior of the handlers who do not apply the health protocol. The good behavior of handlers is because when handling buyers, they always wash their hands, wear masks, maintain health, and do not smell bad. The bad behavior of the handlers is not washing their hands when handling buyers, not wearing masks, not bathing, not wearing clothes. According to data from the Dupak Health Center in 2020 regarding drinking water depots in Dupak Village, the behavior of handlers or people serving buyers does not meet the requirements because they do not have handlers' certificates.

Microbiological quality is the most important and very important in drinking water depots. Microbiological parameters include total coliform bacteria and E. coli with the maximum allowable concentration of 0 per 100 ml sample. The presence of coliform bacteria in the water indicates the presence of enteropathogenic or toxigenic microbes that are harmful to health, while E. coli in drinking water indicates that there has been contamination of feces from humans and warm-blooded mammals. The absence of a disinfection process causes the effect of microbiological quality in the presence of E. coli bacteria and Coliform bacteria in drinking water at drinking water depots (Mutiara, 2017). According to the results carried out by Bambang Wahyudi, the research showed that the physical quality of the drinking water depot did not meet the requirements, but the results of sampling and laboratory examination showed 100% of the requirements for the bacteriological quality of drinking water because no coliform bacteria were found (Bambang Wahyudi 2020). This study aims

to determine whether there is a relationship between sanitation conditions and the behavior of the handlers with the microbiological quality of drinking water at the drinking water depot in Dupak Village.

METHODS

The type of research in this activity is analytic observation, because the research is directed to explain the causal relationship between two variables in an observational way, where the form of the relationship is in the form of analysis of differences (Arikunto, 2006). The approach used is cross sectional, the cause or risk and effect variables or cases that occur in the object of research are measured and collected simultaneously or at the same time (Arikunto, 2006). study examined 10 drinking water depots from each depot, 2 samples were taken to examine the content of Eschericia coli and Coliform bacteria each 100ml/sample and also made observations on sanitation at the depot, among others observing the condition of the buildings and equipment at the depot and also observing the drinking water depot handler

RESULTS

Criteria	number of drinking water depots	Persentase
Qualify	8	80%
Not eligible	2	20%
Amount	10	100%

Table 1. Sanitation Recapitulation of Drinking Water Depots in Dupak Village in 2021

Based on table 1 that 10 drinking water depots in Dupak Village, 8 drinking water depots were found to meet the requirements in terms of sanitation conditions with a percentage of 80%, and 2 drinking water depots did not meet the requirements in terms of sanitation conditions the floor is flooded by water, the roof has lots of cobwebs and it's dusty

with a percentage of 20%. Based on the results of the analysis using the chi-square test, the data obtained is $p = 1,000$, which means that there is no relationship between sanitation and water microbiological quality. This is because the sanitary conditions have met the requirements

The results of this study are in line with research conducted by Hayati, (2020) which shows that there is no relationship between the hygiene and sanitation conditions of drinking water depots with the microbiological quality of refilled drinking water. In this study, it was revealed that based on observations and assumptions at the time of the study that the ratio of the proportion of unqualified sanitation hygiene conditions to good sanitation hygiene with microbiological quality did not meet the requirements.

Criteria	number of drinking water depots	Persentase
Qualify	2	20%
Not eligible	8	80%
amount	10	100%

Table 2. Hygiene Recapitulation of Drinking Water Depots in Dupak Village in 2021

Based on table 2, it can be seen that 10 drinking water depots in Dupak Village found that 2 drinking water depots met the requirements in terms of handler hygiene Don't wear a mask and don't wash your hands before serving buyers with a percentage of 20%, and 8 drinking water depots did not meet the requirements in terms of handler hygiene with a percentage of 80%. Based on the results of the Chi-Square test, the data obtained is $p = 1,000$, which means there is no relationship between hygiene and microbiological quality of water because the existing equipment at the drinking water depot has met the requirements and post-filling handling is recommended to clean gallons with alcoholic tissue. the results of research conducted by Mirza, (2012) in Demak which explained that there was no relationship between the hygiene of the handlers and the number of coliforms in drinking water depots.

Based on the description above, it can be explained that the sanitation hygiene of drinking water depot handlers has an influence on the contamination of drinking water by coliform bacteria so that the quality and quality of drinking water becomes unfit for consumption. dirty work, long fingernails, doing other work and not washing hands first when serving customers.

DISCUSSION

Environmental conditions Drinking water depots in Dupak Village 8 drinking water depots meet the requirements with a percentage of 80% eligible and 2 drinking water depots do not meet the requirements with a percentage of 20%, because the drinking water depots are in locations free from pollution and disease transmission, because they are far with a temporary garbage dump, no waterlogged areas and swamps, and not a location close to the accumulation of used goods or toxic hazardous materials (B3).

Based on observations, it was found that the condition of drinking water depots in Dupak Village not all drinking water depots met the requirements, because there were cracked floors, 1 drinking water depot without plastered floor conditions this could cause puddles inside. In terms of waterproof walls made of plastered bricks (concrete) but the condition of the walls is very dirty, in terms of roofs and ceilings they have strong

and anti-rat roofs, but there are cobwebs in all drinking water depots. The results of the study through a bivariate analysis test between sanitation hygiene and microbiological quality of drinking water at drinking water depots which stated that p value = (1,000) which means there is no relationship between sanitation hygiene and microbiological quality of drinking water. Based on the results of the research conducted, there is no relationship between the conditions of sanitation and hygiene at the drinking water depot with the microbiological quality of the water. This is because the sanitation of the drinking water depot in Dupak Village meets

results of observations about the hygiene of handlers in Dupak Village found that out of 10 drinking water depots in Dupak Village, only 2 drinking water depots met the requirements. This is because the drinking water depot handlers in Dupak Village do not apply Health protocols, including: not wearing masks, not washing their hands before serving consumers. Of the 10 drinking water depots, it is stated that 2 drinking water depots handlers use clean and neat work clothes. All of the 10 handlers of drinking water depots did not carry out regular health checks at least once a year. All the handlers from 10 drinking water depots did not have a certificate of having attended a drinking water depot hygiene sanitation course.

Based on the results of the study, 10 drinking water depots with poor hygiene of handlers, the number of microbiological quality did not meet the requirements, 8 more drinking water depots than those that met the requirements, namely 2 drinking water depots. From the results of statistical tests using the chi-square test, a p value of 1,000 is obtained where this value is <0.05 so this shows that there is no significant relationship between the hygiene of the handlers and the microbiological quality of drinking water at the drinking water depot.

relationship between the hygiene of the handlers at the microbiological quality of drinking water at the drinking water depot because the existing equipment at the drinking water depot has met the standards and the disinfection process has met the requirements. And post-filling handling is recommended to clean the gallon with alcoholic wipes. Therefore, the processing process into drinking water is good. Before filling the water gallon, the gallon is cleaned first

CONCLUSION

1. At the drinking water depot in Dupak Village, it was found that 80% of the drinking water depots met the requirements
2. The hygiene of the handlers at the drinking water depot in the Dupak sub-district was found to be 80% unqualified
3. Microbiological quality of drinking water at the drinking water depot in Dupak Village, it was found that 60% of the drinking water depot met the requirements
4. There is no relationship between sanitation and microbiological quality of drinking water in drinking water depots with $p=1,000$. There is no correlation between hygiene and microbiological quality of drinking water in drinking water depots with $p = 1,000$.

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